LOUIS I. KAHN AND THE ORGANIC TRADITION IN AMERICAN ARCHITECTURE

by

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ABSTRACT

Form is that which deals with inseparable parts. If you take one thing away, you can't have the whole thing [Louis I. Kahn].[1]

Traditionally, in American architectural literature, Louis I. Kahn has been acclaimed as a serious, classical, modern architect. Historians and theoreticians have not generally associated Louis Kahn with the principles of organic architecture.[2] This thesis seeks to establish that Louis Kahn exists within the American organic tradition in architecture, presuming organic architecture to be based on a fundamental aesthetic theory and not formalist or stylistic criteria.

Frank Furness, Louis Sullivan and Frank Lloyd Wright have been considered the founders of the American organic tradition in architecture.[3] The term "organic" in this theoretical exploration is understood as an analogy, and its significance is in its metaphorical nature and not its transliteration as in nature or as in the biological sciences.[4] Preliminary investigations of Louis Kahn's *oeuvre* have revealed startling symmetries with Frank Lloyd Wright's and Louis Sullivan's search for organic principles.

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1 Richard Saul Wurman, ed What Will Be Has Always Been: The Words of Louis I. Kahn , New York: Access Press and Rizzoli International Publications, 1986, p. 244.

2 Frampton [1980], p. 49 , Fratelli [1960], p.16, and Bottero [1967], p.239, have briefly alluded to the existence of an "organic morphology" in Louis Kahn's work.

3 Mark.Mumford, "Form Follows Nature: the Origins of American Organic Architecture" Journal of Architectural Education , [v. 42] Spring 1989, p. 26.

4 An understanding derived from Peter Collins's and Philip Steadman's interpretations of the "organic principle" in Collins [1984], p.156, and Steadman [1979], p. 6.

This research hypothesizes that Louis I. Kahn shares along with Frank Lloyd Wright and Louis Sullivan a search for an Organic Synthesis - a search which in its most profound metaphysical pursuance manifests itself in Architecture in complete harmony with Man, Nature, and Cosmos - through an authentic articulation of parts into an integrated whole - enabling the building to transcend into the immeasurable realm of the vital.[5]

This thesis selectively compares and analyzes the works and writings of Louis Sullivan, Frank Lloyd Wright, and Louis Kahn in order to develop a working definition of organic architecture as a tool for analysis. Comparisons will be made between two canonical public commissions - the Larkin Building in Buffalo, New York, by Frank Lloyd Wright and the Salk Institute of Biological Sciences in La Jolla, California, by Louis I. Kahn. The argument will be illustrated through a formal graphical analysis of selected portions of the two buildings.

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[5] The term "vital" has been borrowed from the text of a speech " On Organic Architecture" delivered to the Michigan Society of Architects by Frank Lloyd Wright on April 10, 1945.

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I am extremely grateful to Professor Anne Tyng, University of Pennsylvania, for sharing with me her personal reminiscences of and associations with Louis I. Kahn; and acknowledgments are also expressed to Professor Joseph Burton, Clemson University, for providing me with his research on Kahn's early childhood education.

My special thanks are expressed to my husband, Vivek, for sharing with me his interesting thesis on the manner by which existing order[s] of a setting potentiate form. I also wish to thank him for sharing his ideas on this theme and for helping me with the illustrations in the latter portion of this thesis.

Finally, I wish to express my gratitude to our parents, and to our two brothers, for simply being there, by our side, as always.

PREFACE

Traditionally, in American architectural literature, Louis I. Kahn has been acclaimed as a serious, classical modern architect. However, the argument put forth in this thesis seeks to assert that Louis I. Kahn exists within the larger organic tradition in American architecture, presuming organic architecture to be based on a fundamental aesthetic theory and not formalist or stylistic criteria.

The Introduction sets forth the context and highlights the significance of this research against the common historical perception of Louis Kahn in American architectural literature. The principles of organic architecture are explored in the second chapter which concludes with the distillation of a working definition of organic architecture.

The latter portions of this thesis compare, analyze, and transpose selected themes from the philosophies and writings of Wright, Sullivan, and Kahn, and specifically attempt to trace the roots of the organic morphology in Louis Kahn. Finally, the argument is illustrated through a comparative graphical analysis of selected portions of two canonical public commissions - the Larkin Building in Buffalo, New York, by Frank Lloyd Wright and the Salk Institute of Biological Sciences in La Jolla, California, by Louis I. Kahn. Conclusions and interpretations on the proposed contention are drawn at the end of the thesis.

LIST OF ILLUSTRATIONS

Chapter One

INTRODUCTION

Louis Isadore Kahn [1901-74] was born on the Baltic Island of Saarma, Estonia. He studied architecture at the University of Pennsylvania in Philadelphia [1920-4], which embraced the French Beaux-Arts tradition of formal planning and classical revivals. After graduation, he worked in several offices, made extended trips to Europe, and then opened his own office in Philadelphia in 1937. In the early years he had difficulty resolving the principles of the Beaux-Arts with the banal functionalism of the International Style. However, he eventually gained a reputation as a distinguished thinker and a theorist while teaching architecture at Yale University from 1947 to 1957 and then at the University of Pennsylvania from 1957 until his death.

International recognition through building designs came to Kahn late in life, first with the Yale Art Gallery [with D. Orr, 1951-53] with its space frame ceiling and then with the Richards Medical Research Building of the University of Pennsylvania [1958-60] with its clear and rational separation of the "served" from the "servant" spaces. Kahn's later buildings such as the Kimbell Art Museum [1966-72], Fort Worth, Texas, and the Yale Center for British Art and Studies [1969- 74], New Haven, Connecticut, clearly sum up his search to create an architecture of an unimpeachable integrity that candidly reveals its structure, function and meaning while simultaneously creating a safe harbor for body, mind, and soul. Acclaimed highly for his poetic architectural vocabulary and a

metaphysically imbued philosophy, Louis I. Kahn today shares with Frank Lloyd Wright the legendary status of an apostle of American architecture.

Although, in the long run, Wright and Kahn have come to occupy fundamentally opposing positions in architectural literature with respect to their attitude towards tradition, formal vocabulary, and spatial disposition, Frank Lloyd Wright was, and perhaps will remain, the quintessential pioneer in organic architecture. Kahn, on the other hand, has seldom - in fact rarely - been associated with the principles of organic thought. This author's investigations of Louis Kahn's *oeuvre* have uncovered interesting symmetries with Frank Lloyd Wright's and Louis Sullivan's search for organic principles. Moreover, Kahn's highly powerful, canonical, and serene buildings, devoted to the evocation of spiritual constants, empathically resonate with an organic vitality. Therefore, this thesis will argue that Louis I. Kahn reiterates the principles of organic architecture as the pioneers had explored them.

The argument takes the following assumptions and assertions as crucial points of departure:

* organic architecture is based on a fundamental aesthetic theory and not formalist and stylistic criteria;

* the term "organic" is a mere analogy, and its relevance is understood in its metaphorical nature and not its transliteration as in nature or as in the biological sciences;

* analogies have played a crucial role not only in the psychological

genesis of artistic and scientific theories but in their continued extension and development; and,

* Louis Kahn is known to have asserted that he was "more 'organic' than Wright."[1]

By referencing Kahn's self-asserted relationship with the organic principles of thought, the author does not intend to imply that the organic analogy provides a key to the whole of Kahn's philosophy as could perhaps be contended in the case of Wright and Sullivan for whom the organic analogy appears to be central and crucial. However, that many metaphorical themes in Kahn's writings share a close semblance to the principles of organic architecture as explored by the organic pioneers lends to this thesis the foundation necessary to pursue the theme in more detail and with more rigor. Sullivan's and Wright's writings and architecture, too, have presented contradictions which seem to undermine the integrity and validity of organic principles. However, this research concentrates on the metaphorical nature of the organic principle and its potential for the strengthening of the artist's design process. This thesis contends that Louis I. Kahn shares along with Frank Lloyd Wright and Louis Sullivan a search for an Organic Synthesis - a search which in its most profound metaphysical pursuance manifests itself in Architecture in complete harmony with Man, Nature, and the Cosmos - through an authentic articulation of parts into an integrated whole - enabling the building to transcend into the immeasurable realm of the vital.

Methodology

The argument is essentially phased into two parts.

The first phase explores the portrait of Louis Kahn in American architectural literature and the principles of organic architecture with a specific focus on American history. Further on, through an extensive analysis of the writings and self-assertions made by Louis Sullivan and Frank Lloyd Wright this thesis distills a working definition of organic architecture. The author also explores the significance of a possible self-assertion by Louis Kahn himself and traces through the writings of historians and theoreticians attempts to relate Louis Kahn to the principles of organic thought.

Taking the above as a sufficient foundation, this thesis further compares, analyzes, and transposes selected themes culled from the philosophies and writings of Wright, Sullivan, and Kahn and highlights the existence of an organic morphology in Louis Kahn's *oeuvre.* [For a working comparison this thesis concentrates on Wright's early expositions (1904-1930), acknowledged by historians to be Wright's most cohesive expressions of organic architecture].

The author fully acknowledges that attempts at tracing sources that have gone into the making of a philosophy and endowing them with specificity is difficult; however, through a brief and selective comparison and contrast process, this thesis does make an attempt to search for

common roots and influences that have gone into the making of organic principles of thought in the three men. The significant points of concentration for this analysis are their childhood training, commonalties in their architectural education, subsequent influences of philosophers and architects, any writings or statements the three architects may have exchanged among themselves, and a brief overview of the three different specific time periods in architectural history in which the three men each operated.

The second phase of this thesis compares and contrasts the Larkin Building in Buffalo, New York, by Frank Lloyd Wright with the Salk Institute of Biological Sciences in La Jolla, California, by Louis Kahn and attempts to illustrate the argument through a formal graphic analysis of selected portions. Finally, conclusions are drawn on the basis of those analyses.

Scope of Thesis

It must be emphasized that the organic tradition in American architecture is part of a larger intellectual, scientific and artistic movement; and the terms "organic," "organicism" and "organic analogy" have much wider connotations and are subject to an extensive critical and historical discussion in the context of literature, fine arts, and the

biological sciences. The interest here is pointedly in design theory; and, therefore, the thesis limits its explorations of the "organic principle" to that of a fundamental aesthetic theory.

End Notes

1. Telephone conversation with Anne Tyng on 21 March, 1993; and Joseph Burton letter dated 16 March, 1993.

Chapter Two

A WORKING DEFINITION OF AMERICAN ORGANIC ARCHITECTURE

For many of those nineteenth-century American architects and theorists who sought a modern aesthetic, nature provided the only sound philosophy. "Ask the fact for the form", Ralph Waldo Emerson wrote, confident that "nature would inspire the artist."[1] In making the work of art, Emerson insisted that the artist proceed like nature in her productions, but the work of art could not imitate nature directly. The artist had to formulate a method of composition paralleling nature's method, translating the process of life, growth and development in abstract form.

Historians are generally in agreement that it was Louis H. Sullivan who first applied the biological analogy of the "organic principle" to architecture in the nineteenth century.[2] In this century, however, the organic principle has been primarily associated with Frank Lloyd Wright, Sullivan's best known disciple. The term “organic” had meant for each of the two men a complex congeries of ideas: the whole is to the part as the part is to the whole; a concern for functional coherence; the relationship of composition to the site and the client; the possibility of growth; the use of local materials; the individuality of every created thing; the need for every artist to endow his work with the integrity of his innermost being; and so forth. But, above all, it had meant a search for a living architecture. The synthesis of fundamentals inherent in a meaningful life

were so simple and instinctive that Wright had difficulty at times in conveying the very underlying essence of "organic" to others[3]. Architecture he saw as the "Master Art." Also necessary for a full life were music, poetry and above all nature--the white clouds against the blue sky--all freely available to all people, all necessary for life-giving enjoyment. Wrote Wright,"...we have here a thing called organic..law and order are the basis of nature's finished grace and beauty."[4]

Many historians, theoreticians and architects associate the term "organic" with asymmetric, dynamic, centrifugal forms which appear to be in consonance with natural forms.[5] However, Peter Collins, in his essay "The Biological Analogy", suggests that "organic architecture" is simply a poetic expression.[6] One could infer, therefore, that the relevance of such a biological analogy remains in its metaphorical nature and <u>not</u> its transliteration. An analogy at a deeper level can be a fundamental source of understanding and scientific insight, as pointed out by Philip Steadman in the "Introduction" to his book *The Evolution of Designs* [1979]. Steadman in his exposition justifies the invocation and the constant recurrence of the biological analogy in architecture;[7] he states, "it is biology, of all sciences, which first confronted the central problem of teleology, of design in nature; and therefore it is very natural that designers have often turned to 'nature' and the 'biological sciences' for inspiration."[8] Steadman argues that an analogy can be a most fertile source of knowledge and further corroborates his argument by demonstrating that the use of analogical thinking has been absolutely

central not only to the psychological genesis of scientific and aesthetic theories but to their continuing extension, development and intelligibility as well.[9] However, while highlighting the significance of the biological analogies to architecture, Steadman also warns against the potential dangers involved in drawing analogies between one subject and the other. He specifically quotes the conclusions of J.T Bonner's essay on "Analogies in Biology" and draws attention to the hazardous superficial transliterations of the biological metaphors as they have appeared in architectural literature.

Wright's conception of an organic architecture, too, has broader philosophic and aesthetic connotations beyond the narrow specific biological analogies to "nature". Moreover, Wright's buildings exemplify a fundamental search for beauty and joy emergent from Man's complete harmony with nature, the cosmos, and his own self. Wright most often worked within abstract geometric grids with little allusion to a mimetic approach to nature, believing that his grids reflected the harmony of the structure of the universe. For Wright, nature ultimately was organized geometrically.[10] The search for an "organic ideal" in architecture for Wright was "the origin and source, the strength and fundamentally, the significance of everything ever worthy [of]..the name of architecture."[11]

In *An Autobiography*, and throughout his writings, Wright seldom revealed a detailed account of the development of his design thinking and its historical sources. In that sense, Wright treats an inquiring historian

much as he treats visitors to the Prairie houses he designed - easy access is denied, the entrance is obscured, one is forced to pause and consider the subject in its entirety.[12] "Organic" is one such elusive expression - a term Wright battled with until the very end of his life, leaving little evidence on its origins. Among the occasional brief glimpses he offered were his exposure to the Froebel kindergarten method and his discovery of the Japanese print.[13] The interlocking Froebel kindergarten "gifts" presented him with a comprehensive vision in which aesthetics were inseparable from universal principles of form.[14] Wright's testimonials to the success of Froebel's goal of developing ways of seeing and thinking are revealing. In his own words:

> Kindergarten training,...proved an unforeseen asset,...all my planning was devised on a properly proportional unit system [the unit-scored table top]... Invariably it [the unit system] appears in organic architecture as a visible feature in the fabric of the design-insuring a unity of proportion.[15]

Elsewhere he wrote:

> This principle of design was natural, inevitable for me. It is based on the straight line technique of T-square and triangle. It was inherent in the Froebel system ...given to me by my mother.[16]

In his analysis of the Japanese print, Wright attempted to define an organic composition structurally. The idea was most clearly stated in an analysis published in 1912:

> The word structure here is used to designate an organic form,...a vital whole... Geometry is the grammar, so to speak, of the form. It is its architectural principle. A Japanese artist ...

> ...acknowledges geometry as its aesthetic skeleton...not its structural skeleton alone, but... the suggestive soul of his work.[17].

The Lineage of the American Organic Tradition

Frank Furness, Louis Sullivan, and Frank Lloyd Wright have generally been considered the founders of the American organic tradition in architecture.[18] The organic tradition is part of a larger intellectual and artistic movement, the sources of which can be traced back in one direction to the functionalism of Greenough, Schuyler and Eidlitz and in another direction to the tradition of Romantic naturalism and the concept of the picturesque.[19] Furness, Sullivan, and Wright [in that order] knew each other personally - Sullivan was an apprentice in Furness's office and Wright was Sullivan's best known pupil. The three men have produced buildings over a span of more than one hundred years, and the chronological distance and stylistic differences in their architecture are visible. Furness's compositions are dynamic and plastic, and his architecture is experienced empathically.[20] A certain flowing quality, a continuity, is inherent in Sullivan's compositions made manifest especially in his use of stylized plant forms in decorative treatments of terracotta work. Wright distinguishes himself through his integration of the structural elements of a building into an interconnected system and in the molding of its interior spaces into an interpenetrating whole. Despite these differences in formal approach, Mark Mumford has discerned that an organic tradition exists in the work of Furness, Sullivan, and Wright and

that this tradition is based on a fundamental aesthetic theory and not on formalist or stylistic criteria.[21]

Exploration of such an elusive concept as "organic," which has appeared in varied manifestations all throughout Wright's long career, is very difficult. However, as has been pointed out by many historians, Wright's most coherent, cohesive, and coercive expressions of organic architecture have perhaps appeared in his earliest writings and buildings. For a working process, therefore, this thesis concentrates on Wright's early expositions [1904 - 1930], and attempts to identify certain levels of interpretation of the organic principle. Primary sources for the same have been Frank Lloyd Wright's and Louis Sullivan's personal writings. Second, cues for developing this author's interpretations of "organic" derive from Peter Collins's suggestion that the organic principle is simply a poetic expression and not meant to be taken literally, from Philip Steadman's contention that analogies have played a crucial role in the psychological genesis of artistic and scientific theories, and from Mark Mumford's analysis of the organic principle as being based on a fundamental aesthetic theory and not stylistic or formalist criteria.

The following working definition of organic architecture distills a few interrelated fundamental principles of architecture which could be read as layers of an onion with each succeeding layer wrapping the preceding one; the first principle of a harmonious whole is the most crucial to the making of an organic building and the succeeding principles

of authenticity and vitality are intimately related to it. The fourth principle of an organic synthesis subsumes the first three; and an authentic articulation of parts into an integrated whole enables a building to reach out for an organic synthesis with the larger whole of Man, Nature, and the Cosmos.

A Working Definition of Organic Architecture

A Harmonious Whole: a systematic coordination of parts into an integrated whole in which part is to the whole as the whole is to the part.[22] A building in which form, function, meaning, ornament, structure, and construction all operate in unison. A building reproducing in its parts the never-ending rhythm of nature's cadences, making it a part of a larger existence of a reality beyond the visible and the tangible.[23]

Authenticity: A building reaching out for Truth - true to method, true to construction, true to structure, true to material, true to function. [24]

Vitality: A building within which resides an inherent dialectic of opposites - finite and the infinite - the very source of life.[25] A building which derives its life from an interdependency of parts into a integrated whole; and, from an underlying compositional aesthetic skeleton experienced as forces and tensions present and active in visible shape.[26]

Organic Synthesis: A building which reflects Man's complete harmony with Nature, the Cosmos, and the potentialities of Human Nature

a. A complete harmony with **nature** does not necessarily lie in the imitation of nature and congruities of appearance [dynamic, centrifugal, flowing forms] but in the primacy of principles of creation and the analogy to life.[27] An organically synthesized building dignifies surrounding nature either through an extension into the landscape or by standing distinct and thus intensifying the surrounding landscape.

b. A complete harmony with the **cosmos** can be said to exist in a space which is characterized by a definable center and a periphery; it is simultaneously centripetal and centrifugal in its action on the human psyche; it is a space that not only projects outward the human body and psyche but also compacts and centers the world inward.[28]

c. A harmony with the **potentialities of human nature** resides in a building made up of easily recognizable flowing and continuous primary geometric forms, enabling man to experience complete freedom [a liberation for both physical action and psyche].[29]

Along with their intense fascination for nature both Sullivan and Wright shared larger concerns for an appropriate architecture true to the American way of life. For both, democracy was a characteristic condition

of American individualism which must be reflected in architecture. According to Wright, "Our ideal is democracy; the highest possible expression of the individual, as a unit not inconsistent with a harmonious whole";[30] and it is significant that the lectures he delivered in London in 1939 were published under the title *An Organic Architecture : The Architecture of Democracy.* Similarly, Sullivan wrote, "Arrange your architecture for Democracy, because... a certain function, democracy, is seeking a certain form of expression, democratic architecture..."[31] Moreover, it can be asserted that both Wright and Sullivan had upheld regionalism in architecture, and for them the most truly American region was the Middle West, especially Chicago. For Wright, America began west of Buffalo because, for him, Chicago was the national capital of "the essentially American spirit."[32] And Sullivan, to whom New York, with its susceptibility to foreign influences, "was the plague spot of American architecture "was delighted with Chicago of which he had said at the very first sight, "This is the place for me !"[33]

Yet another national emphasis is revealed in Wright's series of Usonian houses - small, low cost, free-standing single houses for the true "Usonians" [United Statesonian] - houses often constructed with walls of clapboards and flat roofs covered with wooden slats and intended to merge with the American landscape.[34] Wright's project for the Broadacre City [1932] also exemplifies his craving for a liberal and egalitarian community. Perhaps, Wright's vision of life in America is best realized in his concluding statement in *An Autobiography* :

> In the concept of Architecture as **organic** we not only grasp the center-line of the true indigenous Culture for this era of the machine in Usonia, but we have the beginning of a better world and a more humane racial order.[35] [my emphasis].

Wright's application of the "organic analogy" to the larger social, regional, and national concerns only highlights the universality of this principle of totality. The idea of organic expression as a philosophical, social, scientific, and aesthetic doctrine has profound implications for the history of American architecture and American life in general despite the fact that it is primarily a biological analogy and despite the fact that the validity of such a highly suggestive metaphor lies perhaps in its unique formulation by the author for his very own inspiration! This author's interest is in this very unique formulation of the organic principle in the works of three architects: Sullivan, Wright, and Kahn.

End Notes

1. Ralph Waldo Emerson quoted by Mark Mumford, "Form Follows Nature: the Origins of American Organic Architecture," Journal of Architectural Education , [v. 42], Spring 1989, p. 26.

2. The French periodical *Revue Generale de l' Architecture* has been credited with first launching an "Organic Architecture" in 1863. Quoted by Philip Steadman in The Evolution of Designs: Biological Analogy in Architecture and the Applied Arts , Cambridge : Cambridge University Press, 1979, p. 157.

3. For instance, in attempting to define the term "organic" in the Princeton Lectures [1930], Wright poured out definition after definition - 51 in all - until the concept seemed diluted beyond comprehension.

4. Frank Lloyd Wright, from the Preface to Ausgefuhrte Bauten und Entwurfe , Berlin: Wasmuth, 1910, reprinted as Buildings, Plans and Designs , New York : Horizon Press, 1963, p. 2.

5. Refer to Architectural Review June 1985, and March 1988, for a discussion on contemporary strands in organic architecture. Specifically refer to Bruno Zevi's article on "Organic in Italy," in AR June 1985, p. 89 and Peter Blundell Jones's article "Organic Response," AR June 1985, p. 23. It should be pointed out here that the term "plasticity"as used by Wright is supposed to imply "physical continuity" and not curvilinear shapes. Refer to An Autobiography New York: Horizon Press, 1977, for Wright's discussion on "plasticity", p. 171.

6. Peter Collins, "The Biological Analogy," Changing Ideals in Modern Architecture 1750-1950 , Montreal: Mcgill-Queen's University Press, 1984, p. 156.

7. Philip Steadman, "Introduction," The Evolution of Designs: Biological Analogy in Architecture and the Applied Arts , Cambridge: Cambridge University Press, 1979, pp. 6 -7. Steadman here makes a reference to the historical analogies made between architecture and the biological sciences: Geoffrey Scott's "biological fallacy"; Alan Colquhoun's "biotechnical determinism" of the modern movement; and Christopher Alexander's work, which Steadman suggests is based on an extended biological analogy coming through cybernetics and the theories of W. Ross Ashby.

8. Ibid.

9. Ibid.

10. For a wider discussion on these aspects, refer to Narciso G. Menocal, "Frank Lloyd Wright and the Question of Style," Journal of Decorative and Propaganda Arts , 2, Summer/ Fall 1986, pp. 4 - 19.

11. Frank Lloyd Wright, "In the Cause of Architecture," Architectural Record , May 1914. Also quoted in "What is Architecture ?," Frank Lloyd Wright in the Realm of Ideas , Pfeiffer and Nordland ed., Carbondale and Edwardsville: Southern Illinois University Press, 1988, p. 7.

12. Jack Quinan, Frank Lloyd Wright's Larkin Building: Myth and Fact , Cambridge: The MIT Press, 1987, p.33.

13. Wright, An Autobiography , pp.13-14, and p. 194.

14. Friedrich Wilhelm Froebel [1782- 1852] was a german educator whose main interest was the education of pre-school children. Froebel's didactic materials disguised as "playthings" were intended to strengthen the young child mind's inner forces and serve as stimulants to a self- motivated learning. His kindergarten method was based on his selection of four Natural Laws: [1] **Law of Unity**, uniting all entities- functioning as wholes unto themselves - in their role as parts of larger and larger wholes extending toward the ultimate whole; [2] **Law of Opposites**, contrasting each entity with a complementary polarity; [3] **Law of Development**, developing each entity through a series of transformations - no matter how infinitesimal- from origin onward; [4] **Law of Connections**, connecting all developmental transformation along a continuum of time, all paired polarities along a continuum of degrees of contrast, and binding all parts to their respective whole as well as to the ultimate whole. Froebel further ventured that these laws governed the development of all matter, from the smallest particle to the cosmos, a theory then tentatively projected and now generally accepted. The relationship between these laws and Wright's conception of organic architecture is easily discernible. For a wider discussion on these aspects refer to Jeanne S. Rubin, "The Froebel-Wright Kindegarten Connection: A New Perspective," JSAH XLVIII, March 1989, pp. 24-37.

15. Wright, A Testament ,1957, p.220. Wright is able to recall his past with an exceptionally detailed vitality.

16. Wright quoted by Richard C MacCormac, "The Anatomy of Wright's Aesthetic," Architectural Review, 1968, p . 143.

17. Wright , The Japanese Print: An Interpretation , 1912, quoted by Mark Mumford "Form Follows Nature: the Origins of American Organic Architecture" Journal of Architectural Education [v. 42] Spring 1989, p.36.

18. Mumford, p. 26.

19. Donald Drew Egbert quoted by Steadman, p. 157. For a wider discussion on this aspect refer to D. D. Egbert,"The Idea of Organic Expression and American Architecture," Evolutionary Thought in America, S. Persons ed., Yale: 1950, pp. 336-96.

20. Mumford, p. 33.

21. Ibid., p. 26.

22. The idea of a harmonious organic whole appears as early as 1908 in Wright's essay "In the Cause of Architecture,"The Architectural Record March 1908, when he wrote the words "underlying organic harmony to each in all and the all in each throughout"; however, this fundamental tenet continued to appear throughout Wright's written *oeuvre* , and the famous phrase "the part is to the whole as the whole is to the part" is quoted from the text of a speech "On Organic Architecture" delivered to the Michigan Society of Architects, April 10, 1945. Reprinted in "Organic Architecture," Truth against the World: Frank Lloyd Wright Speaks for an Organic Architecture , Patrick J. Meehan ed., New York: John Willey & Sons, 1987, p. 51.

23. Louis Sullivan, The Autobiography of an Idea , New York: Dover Publications Inc., 1956, pp. 171-172. Wright, too, derived inspiration from the "planned progressions, thematic evolutions and the never ending variety of nature's cadences", quoted from An Autobiography , p. 423.

24. Wright's search for truth in architecture appears as early as 1894 in a statement, "Buildings like people must first be sincere, must be true" published in The Architectural Record , May 1952. In his seminal essay "In the Cause of Architecture," The Architectural Record, March, 1908, Wright wrote, "form must be true forms"; however, this fundamental tryst with truth continued to remain a concern of Wright's throughout his life, and the phrase appeared most clearly as "Now, organic architecture seeks entity, it seeks that completeness which is absolutely true to method, true to purpose, true to character, and is as much the man who lives in it as himself." Quoted from the text of a speech "On Organic Architecture," delivered to the Michigan Society of Architects, April 10, 1945. Reprinted op. cit., p. 51.

25. Sullivan repeatedly used a dialectic of opposites - finite and infinite, conscious and unconscious, objective and subjective and so forth - in his search for the principles of organic creation. Refer to "Function and Form," p. 43; "The Elements of Architecture : Objective and Subjective,"p. 120, in Kindergarten Chats New York: Dover Publications Inc., 1979. An unabridged re-publication of the revised 1918 edition.

26. Mumford, p. 36.

27, 28. These phrases "complete harmony with nature / with the cosmos" are a reference to Wright's search for an organic architecture reaching out for a complete harmony with nature and the structure of the universe. Wright's early writings [1908, 1910, 1914] abound in reverential

references to Nature, Natural law, and the underlying universal law and order . The organic relationship with the cosmos is discussed by Wright in A Testament [1957], wherein he vividly describes his early familiarity with the cosmic principles through the Froebel blocks. While discussing the relationship of the organic principles to the Oriental philosophy in The Natural House [1954] Wright highlights the "organic" relationship with the "cosmos". Very specifically, in a radio broadcast on December 2, 1949, in reference to the famous philosopher Gurdjieff, Wright's conversation, yet again, alluded to an organic relationship with the larger cosmic whole. Wright's understanding of a definable center and periphery is best illustrated in his statement, "The essence of organic building is space, space flowing outward, space flowing inward." Frank Lloyd Wright in the Realm of Ideas , p. 26.

29. Wright believed in the ultimate triumph of the individual; and in his search for the continuous fluidity of space through the "destruction of the box ", he wrote of the Larkin Building," I finally pushed the staircase tower from the main building, made them into free standing individual features...So that the sense of freedom began...which we call organic architecture.." Ibid., p.9. In another statement he remarked, "To Americans thus come natural, free building. For mankind THE IDEAL of man free... this is the meaning of democracy" Ibid., p. 89.

30. Frank Lloyd Wright, "The Art and Craft of the Machine," Frank Lloyd

Wright on Architecture , Frederich Gutheim ed., New York: Duell, Sloan & Pearce, 1941, p .95.

31. Sullivan, Kindergarten Chats , pp. 83, 127.

32. Wright, "Chicago Culture," quoted by Gutheim, p. 85.

33. Sullivan, The Autobiography of an Idea , p. 197.

34. Wright makes a reference to Samuel Butler's Erewhon when he speaks about Usonia; although scholars have been unable to trace the term through Butler's novel and, therefore, the origins of the term remain unknown.

35. Wright, An Autobiography , p.616.

Chapter Three

PARALLEL THEORIES IN THE WRITINGS AND WORDS OF SULLIVAN, WRIGHT, AND KAHN

Two of the most well regarded proponents of an American architecture, Frank Lloyd Wright and Louis I. Kahn, have occupied fundamentally opposite positions in their attitudes with respect to tradition, formal vocabulary, and spatial disposition. Frank Lloyd Wright was, and perhaps will remain, the quintessential pioneer in organic architecture. While Kahn, on the other hand, has seldom - in fact, rarely - been associated with the principles of organic thought. Some historians and theoreticians have speculated on connections between Wright's early "organic" components, such as stair-wells and ventilation shafts in the Larkin Building, and Kahn's articulation of functions into "servant "and "served" spaces.[1] However, no one seems to have expounded in a carefully analytic manner on the correspondence and contrast between the thoughts, ideas, and architecture of the two men; neither apparently has anyone related in writing Louis Kahn's work to the organic principles of architecture. This author's preliminary investigations of Kahn's and Wright's *oeuvre* have revealed interesting parallels and similarities. Consider, for instance, the following juxtapositions of selected aphorisms coined by Kahn and Wright respectively:

> Form is that which deals with inseparable parts. If you take one thing away, you can't have the whole thing
> [Louis I. Kahn, 1973][2].

...organic...something in which part is to the whole as whole is to the part, then you have something that can live, because that is vital [Frank Lloyd Wright, 1908].[3]

* * *

Architecture is the reaching out for the truth. Undefinable and unmeasurable truth [Louis I. Kahn, 1968].[4].

Organic architecture seeks entity, which is absolutely true to method, true to purpose and true to character [Frank Lloyd Wright, 1908].[5]

* * *

Ornament begins with joints...ornament would grow out of our love for the expression of method [Louis I. Kahn].[6]

True ornament is organic with the structure it adorns... at best it is an emphasis of structure [Frank Lloyd Wright, 1909].[7]

Do not Kahn and Wright appear to share the same search for unity, authenticity, and constructional integrity ? Or, is it simply that Louis Kahn just does not happen to use the term "organic" ? A search for an answer to the latter inquiry revealed a little known piece of information about Louis Kahn. He is, indeed, known to have asserted to his colleagues that he was not just "organic" but, as a matter of fact, "more organic" than Wright![8] This evidence lends further foundation to a thesis which proposes a relationship between Louis Kahn and the organic principles of thought.

Three titanic figures in the history of American architecture -- Louis Sullivan [1856 -1924], Frank Lloyd Wright [1867-1959], and Louis Kahn [1901-1974] -- all sought inspiration in the biological analogy of the "organic" thus rendering that analogy a significant amount of emphasis and import in American architectural design theory and criticism :

* In what ways did this analogy actually strengthen the creative process of each of the three architects?
* How did each architect evolve a unique design process in his search for the "organic" and, in turn, strengthen and direct the evolution of the concept of "organic" as it is applied to architecture?
* Is "organic architecture" a reality or is it an intangible ideal based on fundamental principles?
* And, finally, does there really exist a building capable of proclaiming itself to be quintessentially "organic"?

Before proceeding with an analysis which seeks, in some small way, to explore the questions posed above, it is important to point out that metaphorical overtones of the "organic analogy" as applied to stylistic and formal architectural criteria can be numerous, ranging from botanical, anatomical, naturalistic, and cosmic to functional, structural, and geometrical. However, for the purpose of this thesis, the analysis of "organic" limits itself to some selected underlying fundamental principles of architectural theory which have constantly appeared and reappeared in writings and works of the three chosen architects and relies on their ubiquitous presence and constant recurrence as very significant points of

departure in the development of an understanding of "organic". As has been pointed out by many historians, Wright's most coherent, cohesive, and coercive expressions of organic architecture have appeared in his earliest writings and buildings. For the purpose of a comparative analysis, therefore, this thesis concentrates on Wright's early expositions [1904-1930]. At the same time, realizing the fact that concepts evolve over a period of time, chronological notations have been attempted in places.

The Analysis

Both Kahn and Wright have emphasized a harmonic relationship of parts to an integrated whole.

> Form is that which deals with inseparable parts. If you take one thing away, you can't have the whole thing [Louis I. Kahn, 1973].[9]

> ...organic...something in which part is to the whole as whole is to the part, then you have something that can live, because that is vital [Frank Lloyd Wright, 1908].[10]

To Wright the "organic whole," with a balanced and proportional relation of "part[s] is to the whole as [the] whole is to the part[s]" was the very source of "vitality". Kahn, too, spoke of "the life of a building" and of the inseparability of parts when he said, "If you take one thing away you can't have the whole thing". This system of organization was based on a belief that nothing can "live" unless it acknowledges a simple logical system or "order" - the immediate consequence of which was the autonomy of several parts, the fullness of their form, and their

juxtaposition within the whole. This articulated integration of a building, in which each of the major components of a composition asserted its particular identity and yet blended in a hierarchical relation to the larger whole, sought its paradigm in the interdependent systems at work in the larger whole of Man, Nature, and the Cosmos. Buildings were to harmonize with this greater organic totality.

A harmony, however, did not imply a congruence in appearance as is often misinterpreted in the very specific context of the naturalistic overtones of the organic analogy. Buildings were to stand between the earth and the sky signifying their architectonic being in their distinct "will to be."[11] Kahn articulated this conceptual independence and interdependence of Man, Architecture, and Nature in an interesting axiom, "What nature makes, it makes without man and what man makes [Architecture] nature cannot make... [however]...What man makes must answer the laws of nature."[12] Hence, for both Wright and Kahn buildings were to strive to make Nature's laws architecturally manifest.

Nature's grace and beauty, its glowing colors, emergent forms, and the constant interplay of rhythms, all came forth naturally. Flowers and fruits bloom amidst the leaves of its parent plant as an efflorescence from within.[13] This analogy, when applied to architecture, emphasizes that the ornament of a building is to emerge from its "making"; and thus embellishment in architecture was not something to be added to a pre-existing whole, but was to emerge from within.

> Ornament begins with joints,...ornament would grow out of our love for the expression of method [Louis I. Kahn].[14]

> True ornament is organic with the structure it adorns... at best it is an emphasis of structure [Frank Lloyd Wright].[15]

The analogy first appeared in Sullivan's writing, and Wright had learned from him when he said that "ornament is organic with the structure it adorns." Kahn, too, summarized this idea beautifully in his saying, "Ornament begins with joints." While Sullivan's ornament tends to be of the surface, most of the time surrogate to the structure [articulating structure, symbolizing the structural energies embedded within the elemental mass], Wright's and Kahn's ornament more directly, more abstractly, and more circumspectly develops from the particular structure and geometry that build its elemental mass.

> Geometry is the grammar...the aesthetic skeleton, which is the suggestive soul of the work [Frank Lloyd Wright]. [16]

> Order is... [Louis I. Kahn].[17]

Both Kahn and Wright have produced architecture composed of elemental shapes of circles, squares, and triangles, and both were in constant communion with the underlying universal principles of geometry. It was geometry - the organizing principle of all matter [Man, Nature, and Cosmos] - which enabled a logical, predictable, and conclusive

synthesis between form, function, and the object's characteristic essence. The geometric "order" was a universal source of energy for all configurations, from the joining of atoms to form molecules [microcosm], to the complex making of the entire universe [macrocosm]. Similarly, in architecture, too, the subtle source of beauty and harmony was to derive from the geometric rigor of simple arithmetic proportions defining and delineating space. An underlying grid consequently echoed the basic order and rhythm sustaining the universe enabling the building to seek a synthesis with the larger organic whole. To Wright, "Geometry [was] the aesthetic skeleton...suggestive soul of the work."[18]

Geometrical relationships, however, have appeared in Wright's and Kahn's *oeuvre* in subtly distinct ways. What Wright was perhaps able to come closest to was a "reality [that] was supergeometric, casting a spell...over the [obviously] geometric."[19] A rich interplay of geometries appeared in Kahn's springing arches, squares, and cylinders, too. However, Kahn, in contradistinction to Wright, is more controlled in his use of geometries. Wright plays largely with symmetries within an asymmetry, while Kahn plays largely with asymmetries within symmetry. Wright delights in exotic rhythmic patterns, while Kahn delights in serene canonical arrangements. Wright evokes beauty through a visual charm, while Kahn evokes a powerful order.

Wright's forms, based on primary geometry, grow out from the earth - from the tectonic essence - transforming themselves into buildings

through a continuous process of interpenetration of spaces into each other and into the landscape. Perhaps in these very earthly paradigms lies the all pervasive and all compelling lay appeal of Wright's architecture. Kahn's forms, on the other hand, also based on primary geometric forms, transform themselves into buildings through accretion and articulation into distinct spatial units which either turn into themselves or to the Cosmos for a paradigmatic union. Perhaps in these very eternal paradigms lies the distinct powerful esoteric appeal of Kahn's architecture. However, beyond these apparent distinctions, both men sought an empathy and spirituality in architecture, which perhaps resided not in the outward appeal, but in the experience of the inner space enclosed by the roofs and walls.

> A building's fundamental intent is...the making of a room...the interior space...is an extension of the self [Louis I. Kahn].[20]

> ..the reality of a room was to be found in the space enclosed by the roof and the walls, not in the roofs and walls themselves [Frank Lloyd Wright].[21]

To Wright, the fundamental essence of an organic building lay in "the space enclosed by the roofs and the walls". This realization began to appear early in Wright's architectural attempts to a dichotomize a building into a "bi-nuclear parti" and in his conscious attempts at "beating the traditional box." Corners being the most expressive elements of a room or box, he dissolved them first. Later, by dismembering intermediary walls, ceilings, and floors, and finally reassembling the images defining the

functions, he achieved the creation of a "room within." Then, by placing rooms on a diagonal axis to each other and hence effectively removing the corners from each room, Wright was able to allow space to "flow." In Wright's "architecture of the within," walls became screens independent of each other, the open plan appeared naturally, the relationship with the outside became more intimate, and landscape and building became one..."And life was enriched by the new concept of architecture, by light and freedom of space."[22] The essence of an organic building for Wright was "space, space flowing outward, space flowing inward."[23]

Kahn, too, recognized the fundamental essence in the making of a "room." For him "room" was not just the beginning of architecture, but an extension of the self. The genesis of a room lay in the union of structure with light. While structure was organized rationally, the light lent spirituality to the space. In this union of the rational with the spiritual lay the genesis of a room.[24] To grow a room was to further ensure an integrity of the overall form in which the resulting plan was a "society of rooms" in which "the rooms had spoken with each other."[25] The relationship between discrete rooms was conceived in terms of "servant" and "served" spaces. Such a hierarchical division of roles extended from the smallest to the largest constituent element, from the gathering up of the mechanical services to the grouping of school rooms around a central hall to the role of a building within a city. However, beyond this apparent distinction between "servant" and "served," was an acknowledged oneness - their complete integration into a unified whole. Space for Kahn was not

universal and undifferentiated; rather unity would be created from the harmonic integration of unequal parts.

It is interesting to note that in this search for the essence of interior space, what Wright achieved in the end were interpenetrating and interlocking fluid spatial sequences, while Kahn created distinct units of space. Wright emphasized the embracing unity of space, while Kahn emphasized its jointed separateness. Wright's spaces pull the observer in, enclose, release, drawing all finally together into an expansive harmony, while Kahn's spaces are exposed, pushed out, fundamentally separated and, taken as a whole, avoid Wright's embracing envelope. However, both architects seek a complete congruence of space, form, and structure ; and both begin their architecture with the creation of a "room", reminding us, above all, that the genesis of architecture lies in humble beginnings. To Wright it meant the beginning of his search for freedom, to Kahn an extension of the self.

An exploration of Sullivan's writings has revealed that he and Kahn share common threads of organic thought :

> ..the interior of the column was inspiration...the feeling of beginning, where Silence and Light meet [Louis I. Kahn].[26]

> The Pier...aspires, rises vertically serene because within itself are balanced two great forces...the Rhythm of Life and Rhythm of Death...with it the architectural art literally begins [Louis Sullivan].[27]

....*

I think a rose wants to be a rose. Man created by Existence Will, came into being through the laws of nature and evolution [Louis I. Kahn].[28]

But speaking generally outward appearance resemble inner purposes. For instance: the form, rose-bush authenticates its function rose-bush;...are not function and form moving in their rhythm [Louis Sullivan].[29]

* * *

Silence...the presence of the immeasurable, which is the realm of the artist. It is the language of God. [Louis I. Kahn].[30]

.in state of nature, the form exists because of function, and something behind the form...what you call the infinite creative spirit and what I call God [Louis Sullivan].[31]

* * *

Silence and Light are like two brothers...beyond the duality is oneness ..and beyond oneness...is order [Louis Kahn].[32]

Objectivity and Subjectivity are beautifully congenial and harmonious phases of that single and integral essence that we call soul [Louis Sullivan].[33]

* * *

Both Kahn and Sullivan have expressed their amazement with the vital principles at work in nature in rich and lyrical forms of writing. In their search for the spirit of creation, both men have evolved principles which resolve into a dialectic of opposites. For instance, Kahn wrote, "Silence to Light...Light to Silence. The threshold of their crossing is the singularity...is the Inspiration...is the Sanctuary of Art".[34] Kahn's cogent

dialectical analysis of "Form" and "Design" best describes his design process.[35] To Kahn, "Design" was "form-making in order." "Form" was the "what" while "Design" was the "how". "Form" was impersonal while "Design" belonged to the designer. The mind, when faced with an architectural program, according to Kahn, selected from the basic form types lodged in memory. Then, through "Design," the bringing in of the circumstantial particulars of the program, the form was deformed, transformed, wrestled with, and brought forth into the physical realm, expressing its particular nature - "its will to be." Hence, the creation of a building originated in the "immeasurable," went through the "measurable," and, in its final manifestation as a physical being, yet again evoked immeasurable qualities. To Sullivan, too, it was the dialectical rhythms of "objectivity and subjectivity, form and function, through their constant reinforcement [that] strengthened all human endeavors." Both Kahn and Sullivan also had a clear realization of a oneness that lay beyond the apparent dichotomy of dialectics in the threshold of their crossing, in the union of opposites where art was to be born.

Wright's writings do not seem to indicate a conspicuous presence of a dialectic or a contrast of elements which might seem to warp the congruence of his organic whole, although Wright's early resolution of organic design into a bi-nuclear parti does reveal his confident realization of a binary symbiosis - two (equal/unequal) opposite nuclei constantly reinforcing each other's existence in a complete congruent whole.[36] It seems that Sullivan's use of the dialectics of form and function, finite and infinite, and conscious and unconscious is completely resolved in Frank

Lloyd Wright's confident harmony with nature. Wright fully accepts the conclusions of Sullivan's organic philosophy which give him a pioneering faith in man's power of discovery and invention outside of any established pattern.[37] In Louis I. Kahn's philosophy, the dialectic of organic creation reappears as Silence and Light, Form and Design, measurable and immeasurable.

Kahn and Sullivan share a similar quest for the very essence of architecture. Kahn, like Sullivan, began by asking himself where Man's creative power lies, what his Personality is, what his institutions are.[38] What Sullivan called "Instinct," Kahn called "Psyche." The "Psyche" was identical to the vast fathomless power which for Sullivan was "the source of all dreams and desires" and which for Kahn meant "the source of what a thing wants to be."[39] The desire for being "what a thing wants to be" oscillates between Man's "needs" and his "redeeming creative power." This dramatic confrontation of Man with "Needs," but also with "redeeming power" was also central to the Jeffersonian ideal of an American democracy . Between Jefferson's oscillating democratic ideals of "needs" and "redeeming power," the "individual" and "the "collective," and Wright's organic relationship between the "parts" and the "whole," lay the spirit of Louis Kahn's "what does a thing want to be."

In his search for beginnings, Louis Kahn sought the origin of origins. According to him, when you look at a problem look at the beginning. And, in referencing the history of architecture, do not go back to Volume One ; go back to Volume Zero, for Volume Zero precedes the shape...it is the

source.[40] Wright, too, had sought a beginning through a rejection of the then prevalent traditional architectural forms. To him ,"This soulless thing the Renaissance...had betrayed the artist... let us have it done forever."[41] He sought a new beginning for architecture in Nature. Nature had become Wright's "Bible."[42] Similarly, Kahn wrote, "Nature is the giver of all presences [sic]."[43] And to Sullivan, "Nature was strong, generous, comprehensive, fecund and subtle...[therefore]...we must turn again to Nature."[44] In that sense, Louis Kahn, like Wright and Sullivan, sought a new beginning in architecture right from the very origin of origins, seeking inspiration in the secret essence of Nature.

When a search is pursued from its very beginnings, patterns of similar thoughts are bound to emerge. The organic analogy with its naturalistic, cosmic, and dialectical overtones - the former with its naturalistic connotations perhaps closer to Wright, the middle with its cosmic paradigms perhaps closer to Kahn, and the latter with its dialectics of Silence and Light, finite and infinite, perhaps closer to both Kahn and Sullivan - though unique each in its own way, continued to strengthen the three designer's abilities to see, sense, and comprehend the immutable laws and rhythms of creation sustaining mankind, nature and the cosmos and played a crucial role in the development of their power to fuse this understanding with reason, passion, and imagination thus creating an architecture of incomparable distinction.

The fact that Louis Kahn did not seek inspiration from Wright and Sullivan directly has made their conjectured relationship even more intriguing. In that sense, this organic binding has been transformed into a familial relationship, and Kahn appears in this tradition of American organic architecture not as a follower, but as a descendant.

Thus, this thesis initially postulates that Frank Lloyd Wright, Louis Sullivan, and Louis Kahn are curiously united at the deepest metaphysical levels, searching for similar principles of "organic" creation, reflecting each other's ideas with a remarkable symmetry. And, ultimately this thesis contends that Louis I. Kahn shares along with Frank Lloyd Wright and Louis Sullivan a search for an Organic Synthesis - a search which in its most profound metaphysical pursuance manifests itself in Architecture in complete harmony with Man, Nature, and the Cosmos - through an authentic articulation of parts into an integrated whole - enabling the building to transcend into the immeasurable realm of the vital.

However, the final question posed at the beginning of the chapter still remains unanswered. Does there exist a building that can claim itself to be quintessentially organic? Ironically, Frank Lloyd Wright himself, when asked to show what he had meant by "organic," is known to have replied:

> You want to know what constitutes physically this thing we call organic architecture. I have been asked

time and again to show...but I am not going to do it and I have never done so.[45]

Perhaps, the significance of this ideal of an "organic architecture" remains in its intangible existence, in its metaphorical overtones, in its role as a theoretical anchor, all essentially working together towards strengthening the design process of the artist. The following chapter briefly overviews a few formative influences credited to have gone into the making of Kahn's aesthetic theories as distinct from those known to have influenced Wright's and Sullivan's organic philosophies.

End Notes

1. Vincent Scully [1962], pp. 24f., 30, Kenneth Frampton [1980],p. 49, and William Jordy [1972], p.369, have conjectured the Larkin Building to have provided an early precedent for Kahn's vocabulary of the servant and served spaces. However, Jordy quotes Kahn in a personal interview not to have been particularly influenced by Wright. Jordy also draws a parallel between the towers of the Richards Medical Building [radiating from their heart - core] to the organization of Wright's prairie houses around their hearth-core.

2. Louis Kahn ,Richard Saul Wurman, ed. What Will Be Has Always Been: The Words of Louis I. Kahn , New York : Access Press and Rizzoli International Publications, 1986, p. 244.

3. The idea of a harmonious organic whole appears as early as 1908 in Wright's essay "In the Cause of Architecture," The Architectural Record , March, 1908, when he wrote the words "underlying organic harmony to each in all and the all in each throughout" ; however, this fundamental tenet continued to appear throughout Wright's written *oeuvre* , and the famous phrase "the part is to the whole as the whole is to the part" is quoted from the text of a speech "On Organic Architecture" delivered to the Michigan Society of Architects, April 10, 1945. Reprinted in "Organic Architecture," Truth against the World : Frank Lloyd Wright Speaks for an Organic Architecture , Patrick J. Meehan, ed., New York: John Willey & Sons, 1987. p. 51.

4. Louis Kahn. quoted from Wurman, p. 28.

5. Wright's search for truth in architecture appears as early as 1894 in a statement, "Buildings like people must first be sincere, must be true" published in The Architectural Record , May 1952. In his seminal essay "In the Cause of Architecture," The Architectural Record , March, 1908, Wright wrote, "form must be true forms"; however, this fundamental tryst with truth continued to remain a concern of Wright's throughout his life, and the phrase appeared most clearly as "Now, organic architecture seeks entity, it seeks that completeness which is absolutely true to method, true to purpose, true to character, and is as much the man who lives in it as himself." Quoted from the text of a speech "On Organic Architecture," delivered to the Michigan Society of Architects, April 10, 1945. Reprinted op. cit., p. 51.

6. Louis Kahn quoted by Alexandra Tyng in "Foundations," Beginnings: Louis I Kahn's Philosophy of Architecture , New York: John Wiley & Sons,

1984, p. 16, and Louis Kahn, "Towards a Plan for Midtown Philadelphia," Perspecta 2 , p. 23.

7. Wright quoted from the text of a speech, "On Ornamentation: Frank Lloyd Wright Pleads for New Culture Before Nineteenth Century Club-Other Events," January 16, 1909. Reprinted in Truth against the World: Frank Lloyd Wright Speaks for an Organic Architecture, ,op. cit., p. 67.

8. Telephone conversation with Anne Tyng on 21 March, 1993 ; and Joseph Burton letter dated 16 March, 1993.

9. Same as in 2 above.

10. Same as in 3 above.

11. The expression "the building's will to be" refers to Kahn's concept of "existence will." According to Kahn an "existence will" is in everything ; it expresses the order of a thing. A rose wants to be a rose ; a human being wants to be a human being. Moreover, it is the role of the architect to discover the existence will of a building and bring it into the circumstantial world. Kahn would usually begin with a question: What does a building want to be ? The answer to the question will yield the form. Quoted from John. Lobell, Between Silence and Light : Spirit in the Architecture of Louis I. Kahn , Boulder, Colo: Shambhala, 1979, p. 66. Wright, too, spoke of a building's individuality when in 1910, he wrote,

"Given similar conditions, similar tools, similar people, similar language, I believe architects will, with proper regard for the **organic** nature for the thing produced arrive at greatly varied results; buildings sufficiently harmonious with each other and more and more so with greater **individuality.** "[my emphasis]. Quoted from the "Preface, "Buildings, Plans and Designs , New York : Horizon Press, 1963, p. 9.

12. Louis Kahn, "Remarks,"[lecture, Yale University, October 30, 1963], cited in Perspecta , no. 9/10, 1965, p. 305.

13. Louis Sullivan, "Ornament in Architecture," Kindergarten Chats , New York : Dover Publications Inc., 1979. An unabridged re-publication of the revised 1918 edition, p. 189.

14. Louis Kahn, as in 6 above.

15. Frank Lloyd Wright, as in 7 above.

16. Frank Lloyd Wright [1912], The Japanese Print: An Interpretation , quoted by Mark Mumford in "Form Follows Nature: the Origins of American Organic Architecture," Journal of Architectural Education , [v. 42], Spring 1989, p.36.

17. Louis Kahn, "The Mind of Louis I. Kahn," Architectural Forum , Vol.137, No.1, July/August 1972, p.46.

18. Frank Lloyd Wright, as in 16 above.

19. Frank Lloyd Wright, [1931],"Principles of Design," Annual of American Design , [1931], pp. 101-104.

20. Louis Kahn, "I have some thoughts about the spirit of architecture," [Kahn Collection, undated, Box no. 9], also cited in Lobell [1979], p. 38.

21. Frank Lloyd Wright, The Architectural Record , December, 1928, Reprinted in In the Cause of Architecture , Frederick Gutheim ,ed., "In the Cause of Architecture : IX The Terms, December, 1928," p. 226. In the context of this discussion it is interesting to note how the concept of "servant" and "served" often associated with the servant spaces inserted in Kahn's "hollow columns" or "hollow stones" slowly evolved [over a period of approximately eight years from 1953-61] into a larger philosophy of the creation of a room within. In 1953, Kahn stated "we know that in Gothic

days they built in solid stones. Now we can build with hollow stones". In 1960, from "hollow stones" Kahn moves on to "hollow columns" and writes that "A column I think is the beginning of architecture...And this column may become a room because it is so big" Therefore, a "hollow column" gets transformed in scale and becomes a room. Kahn restructures his previous saying now, and states that, "the room is the beginning of architecture...an extension of self ". This last shift indicates a realization that the origin of architecture does not lie in architectural movements such as "the walls parted and the columns became" or "the destruction of the box", but in the creation of a room - an experiential space that responds the human desire to be. For wider discussion on the evolution of this aspect of Kahn's philosophy refer to Enrique Vivoni Farage, A Measure of Silence: Louis I. Kahn and The Transformation of the Wall , A Doctoral Dissertation, University of Pennsylvania, 1985, pp. 49-62. Similarly, Wright's first written expression of this realization of the room within first appears in December 1928 in The Architectural Record. In "The Destruction of the Box,"[1952], Wright mentions that perhaps in The Unity Temple "you will find the first expression of the idea that space within the building is the reality of the building." Later, in an interesting discussion on the relationship of organic architecture to the oriental philosophy in The Natural House, he wrote,"For a long time, I thought I had "discovered" it, only to find after all this idea of interior space ... was ancient and oriental... Well, there was I. Instead of being the cake I was not even dough... But I began to swell up again when I thought. After all, who built it?... I have been going along- head up - ever since."

22. Frank Lloyd Wright, New York Times Magazine, October 4. Also quoted in Frank Lloyd Wright in the Realm of Ideas , Pfeiffer and Nordland ed., Carbondale and Edwardsville: Southern Illinois University Press, 1988,p. 9.

23. Frank Lloyd Wright, A Testament, , [1957]. Also cited in Ibid., p. 26.

24. This idea of the union of structure with light leading to the creation of a room is inspired from a poem by Wallace Stevens, particularly a line which he paraphrased as "What slice of the sun does your building have ?" To which Kahn seems to be replying when he says "the sun didn't know how great it was until it stuck the side of a building." Quoted from Beginnings , p.131.

25. This is in reference to Louis I. Kahn's famous aphorism about the plan being "a society of rooms" and "the rooms having spoken to each other," cited in Lobell, op. cit., p.36.

26. Louis Kahn quoted by Alexandra Tyng, op. cit., p. 22.

27. Louis Sullivan ,"The Elements of Architecture : Objective and Subjective," Kindergarten Chats ,New York : Dover Publications Inc., 1979, An unabridged re-publication of the revised 1918 edition, p. 121.

28. Louis Kahn, What Will Be Has Always Been , Richard Saul Wurman, ed. ,p. 262.

29. Louis Sullivan, "Function and Form," Kindergarten Chats , p. 43.

30. Louis I. Kahn, As quoted in "Silence and Light," Kahn Libraries Bibliotecas , Barcelona, Publicacions Del Col. Legi D'Arquitectes De Catalunya, 1989, p. 136.

31. Louis Sullivan, Kindergarten Chats , p. 46.

32. Louis Kahn. quoted from the Silence and Light diagram. It is interesting to note that in his 1968 diagram Kahn discerns silence and light separated by a clear boundary ; in 1971, the line becomes dotted ; by 1972, the threshold was drawn as a vague area with many possible crossings. By 1973, light was just shown as the contrast between the whiteness of the paper and the darkness of the lines drawn on it...beyond the dichotomy was a oneness.

33. Louis Sullivan, "Emotional Architecture as Compared with Intellectual," Kindergarten Chats , p. 194.

34. Louis Kahn cited in Lobell, op.cit., p. 20 and p. 24.

35. Louis Kahn, "Form and Design ," published in Vincent Scully, Jr., Louis I. Kahn , New York: George Braziller Inc., 1962, pp. 114-21. Wright's belief in the underlying essence of "form" is revealed in an early writing in 1910.." ..the differentiation of a single certain form characterizes the expression of one building [and] quite a different form may serve for another, but from a basic idea all the formal elements are in each case derived and held together in scale and character."[my emphasis] from Ausgefuhrte Bauten, unpaged.

36. Wright expression of a bi-nuclear *parti* seems to have been his own invention. It has no precedent among the tall buildings of Adler & Sullivan and the rest of the Chicago School, but it has been speculated by historians to be a further rationalization of Sullivan's functionally inspired

tripartite vertical division of the office building. A tendency to separate differing functions into discrete units is apparent in Wright's Oak Park Studio [1898-1900], it gradually transformed into a clear bi- nuclear *parti* which Wright continued to employ in the planning for major commissions throughout his career, notably the Larkin Building, the Unity Temple, the Johnson's Wax headquarters, and the Guggenheim Museum. Another instance when Wright writes about a union of opposites is ," In the opposition of the circle and the square...I find motives for architectural themes with the all the sentiment of Shakespeare's "Romeo and Juliet," cited in Quinan, p. 43, and p. 115.

37. Maria Bottero "Organic and Rational Morphology in Louis Kahn," Zodiac 17 , 1967, p. 240.

38. Louis Sullivan, quoted by Maria Bottero, Ibid., p. 244.

39. Louis Kahn, quoted by Maria Bottero ,Ibid.,

40. Louis Kahn, quoted in What Will Be Has Always Been , p. 245.

41. Frank Lloyd Wright ,"Chicago Culture,"[1918], quoted by Gutheim p.95.

42. Frank Lloyd Wright, [1957], quoted from A Testament ,reprinted in Frank Lloyd Wright : Writings and Buildings , Edgar Kaufman and Ben Raeburn, eds., New York: The World Publishing Company, 1961, p.26.

43. Louis Kahn quoted in What Will Be Has Always Been , Richard Saul Wurman, ed., p. 1 and, p. 245.

44. Louis Sullivan, Kindergarten Chats, p. 201, and p. 190.

45. Frank Lloyd Wright, quoted from the text of a speech "On Organic Architecture" delivered to the Michigan Society of Architects, April 10, 1945. Reprinted, op.cit., p. 53.

Chapter Four

THE ROOTS OF KAHN'S ARCHITECTURAL PHILOSOPHY

Over a person's lifetime many ideas, thoughts, observations, and influences work to synthesize into a purely individualistic and mature personality. An attempt at tracing sources that have gone into the making of a philosophy and endowing them with specificity is difficult. Considering the comparative nature of the argument, the following discussion concentrates on some acknowledged crucial points of departures which have influenced the aesthetic theories of Kahn as distinct from those of either Wright or Sullivan.

The period of Kahn's formal education, 1912-1924, coincided with what today is called the Progressive Era. Most revolutionary in Progressive aesthetic theory was the emphasis upon "expressionism": the symbolization of the subjective inner experience over traditional "mimesis", or the imitation of natural appearances. Kahn's philosophy was initially shaped while growing up by the verbal tutoring in mysticism and German Romanticism by his mother. This intellectual guidance was complemented and reinforced by pedagogies based on expressionist and romantic theories commonly employed by schools and institutions in Philadelphia.

Kahn's Formative Years: Nature Study

While Frank Lloyd Wright's Froebel kindergarten training and its influence upon his organic design approach have long been a matter of interest and study, "Nature Study", a pedagogy devised by an eminent Progressive Expressionist, J. Liberty Tadd, has only quite recently been credited to have influenced a young Louis Kahn's mind.[1] J.Liberty Tadd was the director of the Public Industrial Art School which Kahn attended one - half day per week from fourth grade on. Tadd's pedagogy came in three parts and was summarized in his book, *New Methods in Education: Art, Real Manual Training and Nature Study*. It was the study of nature, however, that was the fundamental foundation of this tripartite approach. "Nature study" began with the study of objects from nature, such as shells, plants, animals, fish, and birds and then moved on to a study of underlying geometric, abstract, and ideal forms such as cubes, pyramids, and spheres. It was Tadd's emphasis upon the study of nature before moving on to the study of geometrical abstractions which differentiated his pedagogical method from the followers of Froebel. The Froebel method, by contrast, began with an introduction to the basic underlying universal geometric elements and stressed that the child mind acquire an early familiarity with cosmic principles. Both systems of education were, nevertheless, based upon a pantheistic conception of nature. The aim of each method was two fold - intellectual and spiritual; an understanding of the laws of nature would simultaneously develop the powers of reason and convey a sense of the harmony of God's order. In light of such an inheritance it is interesting to note how acutely Kahn's and Wright's

writings reflected their respective early childhood training:

> One must **imitate nature** first before one can express. Mimesis is sketching from nature. **Design is expression** [Louis I.Kahn].

> The virtue lay in the awakening of the child-mind to rhythmic structure in Nature...I soon became susceptible to constructive pattern evolving in everything I saw... I **did not care to draw casual incidentals of Nature**, I wanted to **design** [Frank Lloyd Wright].[2]
> [my emphasis]

Ambidextrous exercises emphasizing large-scale drawing on blackboards and hands-on engagement with the medium of sculpture supplemented "Nature Study", and were Tadd's unique contributions to art education. Tadd's memory drills were repeated over and over again, like a musician practicing scales, until drawing and three-dimensional sculpting became completely automatic and instinctual for the student. Kahn's description of his own drawing process in the medieval city of Carcassone in 1959 clearly recalls his debt to Tadd's expressionist ideals--a mnemonic method moving from mimesis to creative expression:

> I began **studiously to memorize** [sic] in line the proportions and the living details of this great building... At the close of the day I was **inventing shapes** and placing buildings in different relationships than they were. [my emphasis][3].

By modern standards, the requirements of these methods of education may appear to be extraordinarily strict in that the theme of aesthetic education almost became a moral discipline for the child.

The Beaux - Arts and the Organic Schools Of Thought

In 1920, Louis Kahn joined the University of Pennsylvania, an architectural program infused with the confident rigor of the Ecole des Beaux-Arts of Paris. When questioned by historians and critics, Kahn in contrast to Wright, never failed to acknowledge the lessons he had learned from his teachers and a Beaux- Arts education. Kahn's emphasis on what he came to call "Form", the inherent essence that an architect had to discern in an architectural program, was related to the Beaux-Arts emphasis on the preliminary, instinctive *esquisse*, or quick sketch exercizes.[4] Kahn also attributed the germ of his highly developed notion of a hierarchy between "served" and "servant" spaces, the latter often inserted in hollow structural systems, to the *poche'* or "pocketing" of spaces within masonry that was typical Beaux-Arts schooling.[5] Kahn's own planning in his student years steered away from the unremitting axial symmetry that was judged to be the hallmark of the Beaux-Arts method. In fact, his training emphasized the regular breaking and disguising of axes in order to preserve the freshness of their organizing effect. Dynamic balance rather than strict symmetry, thus became Kahn's primary concern.

The French academic version of classical architecture, taught at the Ecole Beaux-Arts in Paris, has generally occupied a fundamentally opposite

position with respect to the organic school of thought. The doctrine of organic expression, with its romantic regard for the individual genius, considers itself to be antithetical to the Classical principles of design presumably because of the latter's emphasis on traditional universal principles.[6] Beaux-Arts Classicism emphasized an anatomical assemblage of one or two basic types of primary forms with a single underlying geometry unifying the whole. In that context, it is important to note that Wright's organic approach to design, too, was based on a strictly controlled play of universal geometries. Moreover, Wright's pioneering emphasis on "the part is to the whole as the whole is to the part " finds a clear precedent in the idea of a "unified whole" which has continued to pervade both Classical and Romantic belief systems; and perhaps, Wright's ideas of constructional integrity, program responsiveness, and site suitability in organic architecture may find their origins in the Vitruvian triad of firmness, commodity, and delight.

Kahn's Crucial Influences

Paul Philippe Cret was Kahn's teacher during his final year of architectural study [1923-24]. Cret's view of human history was seen through the eyes of French rationalism and late 19th-century science. His precepts of "Structural Rationalism" were highly influenced by the theories of Choisy, Viollet-le-Duc, and Henri Labrouste.[7] His influence is clearly evident in Kahn's search for structural images of simultaneous rational and aesthetic worth as well as in his concern for finding the correct *parti* for a project that would express the essence of contemporary

needs, psychological and physical. Unlike the Progressive expressionist theory, Cret believed in mimesis, in an Aristotelian imitation of natural law. Due to his ambivalence to American tastes and his anti - Progressive stance, Cret was never really accepted as an American architect. Cret's faithful disciples also suffered the same peer rejection as their teacher. Kahn, however, benefiting from the largesse of Progressive expressionist institutions, was intellectually prepared to break with tradition, traverse the International Style, and reconstitute a vocabulary of his own.[8]

Throughout his life Kahn benefited quite a lot from those who worked with him in his informally organized office. In like manner, his involvement with students and faculty at Yale or the University of Pennsylvania and at other schools where he taught also played an important role in the formulation of his ideas on architecture. Kahn's strictly controlled geometry was known to have been greatly influenced by Anne G. Tyng, with whom he developed a close working partnership in 1945. Tyng's collaboration and influence on matters of design emphasizing a geometric regularity is best illustrated in the final version of the City Tower [1956-57], a 616-foot-high structure composed of triangular modular geometries. In fact, in praise of her incisive understanding of geometry, Kahn once wrote that Tyng "knows the aesthetic implications of the geometry inherent in biological structures bringing us in touch with the edge between measurable and the unmeasurable."[9] Anne Tyng also formed an effective bridge between Kahn and Buckminster Fuller. She and Kahn had met Fuller in 1949; and Fuller, too, came to respect her "superbly crafted and original scientific work

which discloses her discovery of Golden-mean relationships between the whole family of Platonic solids...Anne Tyng is known to be Louis Kahn's geometrical strategist."[10]

Robert Venturi joined Kahn's office for a very short period in 1956. Venturi's perceptive comprehension of personal mannerisms and specificity in architecture was known to have influenced Kahn and led to the loosening of Kahn's growing inclination toward highly controlled and compulsively ordered designs. If Anne Tyng can be said to have strengthened Kahn's tendencies towards an abstract geometric order, then surely Venturi provided the means by which the order could be made more poetic.[11]

Later in life, Kahn' s collaboration with Dr Jonas Salk not only led to a sophisticated and joyous architectural expression but also confirmed Kahn's belief that the scientist and the artist sought the same goals although they did so by those methods most appropriate to their separate disciplines. Kahn's philosophy has also been compared, most often, to the psycho-analytical theory of C.G Jung and to the philosophy of Martin Heidegger. Kahn acknowledged the parallels to Jung and Heidegger but disavowed any influences.[12]

More fully than any of his previous designs, the Richards Medical Research Building at the University of Pennsylvania in Philadelphia, embodied Kahn's developing sense of differentiated space shaped by a visible, rational, individualizing structure. By the time of the building's

dedication in May 1960, critics sensed that a new synthesis was emerging, one that seemed to derive partly from Ludwig Mies van der Rohe and the International Style, partly from Le Corbusier, and partly from Frank Lloyd Wright, but with an individual distinction uniquely its own. Various visual sources have been suggested for the Richards Building, ranging from the medieval towers of San Gimignano to facades by Mies van der Rohe. Wright's Larkin Building [1904], which Vincent Scully suggested as an influence early on, provides a more convincing precedent and also brings to sharp focus the question of Kahn's relationship to Wright. Of his generation of architects, Kahn is known to have had more praise for the work of Le Corbusier and Mies van der Rohe.[13] Documented evidence of ties between Wright and Kahn is slight. In 1952, Kahn and Wright both attended a convention of the American Institute of Architects ; in 1955 Kahn praised Wright's early work; and when Wright died in 1959, Kahn wrote in tribute, "Wright gives us insight to learn that nature has no style, that nature is the greatest teacher of all. The ideas of Wright are the facets of this single thought."[14] Scully recalls that later that same year Kahn made his first visit to a Wright building, the S.C Johnson and Son Administration Building [1936-39] in Racine Wisconsin, where, "to the depths of his soul, [he] was overwhelmed."[15] In the long run, however, Frank Lloyd Wright and Louis Kahn have seldom been associated in American architectural history, and their relationship remains largely unexplored. The following chapter illustrates a few organic design principles through a comparison and contrast of two buildings-the Larkin Building by Frank Lloyd Wright and the Salk Institute of Biological Sciences by Louis Kahn.

End Notes

1. A Recent research by Joseph A. Burton, "Progressive Millennialism in the Education of Louis I. Kahn, 1912-1924, Expressionist Theory in the Genesis of an American Master Architect," [to be published in Perspecta 28 , Fall, 1993] brings to light the influence of expressionist theories on Louis Kahn during the period of his formal education.

2. Frank Lloyd Wright quoted from A Testament , 1957, reprinted in Frank Lloyd Wright: Writings and Buildings , Edgar Kaufman and Ben Raeburn eds., New York: The World Publishing Company, 1961, p.19.

3. Louis I. Kahn, What Will Be Has Always Been : The Words of Louis I. Kahn. Richard Saul Wurman ed., New York : Access Press and Rizzoli International Publications, 1986, p. 256.

4. Kahn's own description reveals his acknowledgment : "For beginning design problems Beaux-Arts training typically presented the student with a written program without comment from the instructor. He would study the problem, be given a period of few hours in a cubicle [enloge] during which he would make a quick sketch [esquisse] of his solution without consultation. Final drawings could not violate the essence of the initial esquisse...the sketch depended on our intuitive powers. But the intuitive power is probably the most accurate sense." Quoted from "Kahn on Beaux-Arts training," ed. William Jordy, Architectural Review 155 , June 1974, p. 332.

5. David B .Brownlee and David G. De Long, Louis I. Kahn : In the Realm of Architecture , New York: Rizzoli International Publications, 1991, p. 22.

6. Louis Sullivan, who studied at the Ecole expressed his misgivings about his Beaux-Arts education. He was very critical of the Beaux-Arts for its "artificiality" and "lack of primal inspiration." The Ecole des Beaux-Arts in Paris originated with the founding of the Academie d'Architecture in the

seventeenth century during the highly aristocratic age of Louis XIV. To Sullivan, most American architecture at the time, highly influenced by the Beaux-Arts method, was "viciously undemocratic." He sought an organic architecture which drew its strength from nature. Of his own inspirations he wrote : "The school did not give me my start. My real start was made, when, as a very young child living much out of doors, I received impressions from the shifting aspects of nature so deep, so penetrating, that they have persisted up to this day...someday I must inevitably express myself in my own way. French logic doubtless helped to focus this ambition."

7. Kenneth Frampton,"Louis I. Kahn and the French Connection," Oppositions 22, [Fall 1980] , p.21.

8. Joseph Burton, op.cit., [to be published in Fall 1993].

9. Letter from Kahn to John D. Entenza [director, Graham Foundation],, March 2,1965, "Letters of Recommendation, 1964," Box LIK 55, Kahn Collection. Quoted in David B. Brownlee, and David G. De Long, op. cit., p. 53.

10. Letter from Fuller to Entenza, April 5, 1965, "Fuller, R. Buckminster Correspondence, 1965," Box LIK 55, Kahn Collection. Quoted in Brownlee and Delong, p.53.

11. Brownlee and Delong, p. 62.

12. Joseph Burton, footnote 19. Kahn has known to have acknowledged the parallels to Heidegger to architects Cook and, Koltz. Anne Tyng gave Kahn a copy of Carl Jung's Man and His Symbols in the early 1960s, after a perusal, he is known to have responded," Very interesting but I already knew that."Yet another book conjectured to have influenced Kahn's thinking was D' Arcy Wentworth Thompson's On Growth and Form. Evidence suggests that though, Kahn did recommend the book as the only

one that would explain architecture, he admitted that he himself had never read it. Refer to footnote 9, Brownlee and De long, p. 74. Historians have also suggested Rudolf Wittkower's treatise, Architectural Principles in the Age of Humanism to have been a crucial influence in the shaping of Kahn's philosophy. However, colleagues claim that he mainly studied the illustrations. Quoted from Brownlee and Delong, p. 56 .

13. In praise of Le Corbusier's Chapel at Ronchamp [1951-55], Kahn wrote," I fell madly in love with it... It is undeniably the work of an artist." Quoted from Brownlee, p. 52. Of Mies van der Rohe, he once wrote, "Mies is the Master craftsman disciplined by the vision of classical Greek architecture,". Quoted from the reproductions of the notebooks of Louis I. Kahn in What Will Be Has Always Been , [1986], unpaged.

14. Louis Kahn quoted from James Marston Fitch,"Frank Lloyd Wright 1869 - 1959," Architectural Forum , [v. 110], no.5, May 1959, p.114.

15. Louis Kahn quoted by Brownlee, p. 63, also refer to footnote 84 on p. 76.

Chapter Five

FORMAL ANALYSIS OF TWO CASE STUDIES-THE LARKIN BUILDING AND THE SALK INSTITUTE

Although Frank Lloyd Wright's legacy in organic architecture has primarily been associated with his earth hugging, low lying horizontal Prairie houses, the Larkin building, despite its public and monumental character, has been acknowledged by Wright to be a point of departure in his search for organic principles.[1] At the same time, as an iconic landmark in the history of public buildings in America, the Larkin Building, with its impulsive idealization of workplace and its discrete functional articulation, is an excellent case for comparison and contrast with Louis Kahn's canonical beacon of knowledge and inspiration - the Salk Institute for Biological Sciences. Moreover, as discussed earlier, speculations made by historians connecting the monumentalization and valorization of the Larkin's stair towers to Kahn's famous taxonomy of "servant" and "served" spaces further argue in favor of this author's choice of these two particular case studies. By concentrating on more crucial points of difference or departure which are known to have been influential in the making of these two buildings, the following analysis aims to discern some organic design resolutions. Analytical drawings and diagrams synthesizing the techniques of Baker [1984], Herdeg [1990], and MacCormac [1968], have been produced to support the argument.[2]

Frank Lloyd Wright's Larkin Building in Buffalo, New York [built in

1904-1906 and demolished in 1950], was the headquarters of Larkin's prospering soap manufactory and premium - based mail-order business. It was located in a semi-industrial neighborhood one mile east of downtown Buffalo. On the other hand, the Salk Institute of Biological Sciences in La Jolla, California [built in 1959- 65] by Louis I. Kahn is a premier research institute located on the shores of the Pacific and houses a self- contained community of scientists.

Both buildings are a fundamental assimilation of the idealized workplace which houses a self-contained community of individuals. In the Larkin Building, the program called for a building to accommodate 1,800 office workers who were to process 5000 or more customer letters a day. For this purpose, Wright created a clean, well-lit, fire-proof, air conditioned, hermetically sealed environment and focused the design inwards on a six- story light court or atrium thus completely divorcing its workers from their industrial surroundings. At the Salk Institute, too, the design is essentially inward oriented and focuses on a central court, which is here, however, an exterior space open to the sky. Moreover, the tripartite segregation of the building complex into laboratories, a meeting hall, and housing units and the building's iconic connections to nature - its powerful facade to the sky and its compositional embrace of the Pacific enlivened by the single stream of water - all contribute towards the creation of a place of lively human exchange and solitary rigor for its academic community[3].[Fig.1 & Fig.2].

Both buildings reach out for a cosmic union through a transition from mundane functions to spiritual ideals. The Salk Institute radiates inwards from the exterior utility spaces containing stairs and towers [body] - through the hermetically sealed laboratory spaces wherein the research takes place [mind] - through the walkways [society] - to the private enclaves of scientists with ocean views, a place for contemplation, and the central court, a place of stillness or a "facade to the sky" [spirit]. The Larkin Building, too, radiates inwards from the exterior utility spaces containing stairs and toilets [body] - to the outer periphery of work spaces [for 1,800 workers] centrally organized [mind and society] - to a symbolically expansive yet spatially contained top-lit court [spirit] - into the realm of transcendence.

The Development of the Larkin Design

The Larkin Administration Building design was substantially altered in the course of the eighteen months immediately preceding construction. However, Wright's bi-nuclear *parti* breaking the building into principal [main block],and subordinate mass [annex], was present from the very onset. The central court of the main block was given a prominent focus, and the staircase towers which in the latter design were relocated at the corners were initially placed within this central space [Fig.3a]. Despite the promise of the early designs, Wright decided to move the enclosed stairs of the light court placing them at the four corners of the building [Fig.3b]. In his account of the creation of the Larkin Administration Building in *An*

Autobiography Wright related this process which greatly transformed the design with maximum dramatic effect, but the drawings in the archives of the Frank Lloyd Wright Memorial Foundation suggest that the final form of the building actually took shape in a less dramatic fashion[4] [Fig.4]. The early drawings also show an obvious debt to Wright's mentor, Louis Sullivan, in the arched foliated entry to the annex, and the decorative panels and belt courses [Fig.5]. These surface decorations were, however, eliminated in the final design giving way to an abstract composition in which structure, mechanical functions, and space were more intimately integrated .

Wright has written of his Larkin solution that "the movement of the stair block" came to him "in a flash". Although evidence unearthed by historians highlights a very ordinary development of the design and provides an interesting counterpoint to Wright's "flash like inspiration;" yet there is no discounting the fact that each of Wright's movements and refinements in the Larkin Building did indeed constitute a new validation of his organic design approach and that they had a powerful influence upon his subsequent architecture and on that of several generations of architects[5].

Wright's decision to move the stairways to external positions triggered a number of revisions to the entire design, the most striking of which was the creation of the pylon-like assemblage of interlocked towers, and a relocation of the annex [Fig.6, Fig.7, Fig.8, Fig.9]. Wright must have

realized almost at once that the creation of prominent stair towers for the main block necessitated stair towers for the annex as well as a means of harmonizing the two units[6]. But considering that there was no room for an annex stair tower on the northeast corner of the lot, Wright was forced to move the annex to a symmetrical position along the east side of the main block. Thus, by repositioning the annex midway along the east flank of the main block, Wright exchanged a stage-like conception based upon the deep forecourt and Sullivanesque arched entrance for one emphasizing the three-dimensional presence of the building's geometric masses [Fig.10]. At the same time, by eliminating the decorative panels and belt courses, Wright made his design truer to materials and to the idea that functions should be expressed more openly. However, the small amount of the sculptural ornament that was retained did serve certain important symbolic functions[7]. The spherical motif was a predominant theme in the sculptural relief and it provided an interesting counterpoint to the unrelenting rectilinearity of the building. The other predominant motif was a chevron created by the crossed arms of the globe - supporting putti which repeated itself in the pier capitals as well. The upward thrust of these patterns worked against the rectangular forms of the building. Wright also enlarged the capital on each pier and extended it downward the full height of the top band of windows. This modification visually "stopped" the vertical piers at the sill of the top windows thus dissolving the sense of support in the ornament and visually setting the cornice slab free of the piers below. This maneuver of Wright's was yet another manifestation of his search to break free from the confines of the "box."[8]

The Larkin Building's first fundamental step, "the movement of its staircase towers" and their subsequent monumentalization and valorization, has often been conjectured to have been the precedent for Kahn's famous taxonomy of "servant" and "served spaces". First, the distinction between the "servant" and the "served" is apparent in Wright's binuclear resolution of the building mass into an "annex" and the "main block". In the Larkin Building Wright created a six-story, light court in the main building block as the principal work space [served] and appended the supportive functions in an attached annex [servant][Fig.11]. Within the principal block he moved the utilitarian stair towers out of the central space and pushed them out at the corners into discrete, semi-attached supportive features thus conspicuously emphasizing the "servant" over the "served" [Fig.12]. This relocation of the stair towers freed the light court as a pure work space and left organization of the main block clearly dichotomized as solid versus void wherein multilevel tiers were essentially arranged in a concentric manner around a central single vertical top-lit space [Fig.13]. Here, it is difficult to resolve whether the central top-lit space serves the tiers of work-space or the work spaces, instead, are concentrically arranged in homage to the central space. Therefore, the apparent distinction between the "servant" and "served" is here completely erased and a symmetrical solid/void resolution reinforces the unity of the larger whole. In that sense each part of the larger whole of the Larkin Building beautifully resolves into Kahn's organic taxonomy of the "servant" and the "served."

Wright's organic design resolution is also expressed in the movement of mail through the building. The horizontal movement options provided by Wright's bi-nuclear *parti* when juxtaposed with the vertical circulation of the mail which, after it had left the third floor, was primarily downward or gravitational clearly brought to realization Wright's famous aphorism "space flowing outwards; space flowing inwards."[9] This search for a "boundless space" breaking away from the confines of the closed box was first made manifest in the Larkin Building [Fig.14].

The Design Development of the Salk Institute

According to Kahn, the principal creative act lies in an almost mystic illumination brought to the essence of "form" which is then deformed through "design" or the bringing in of the circumstantial. However, the design development of the laboratories of the Salk Institute suggests that there were, instead, numerous "circumstantial" conditions that brought about the realization of the institution into a more cohesive whole.

The Salk Institute was to be an embodiment of Dr. Jonas Salk's vision of a facility that would support scientific research and foster the exchange of ideas between scientists and other cultural leaders. The test case for this architecture, often reiterated by Salk, was to be a place wherein "he could entertain Pablo Picasso."[10] Kahn's initial scheme proposed four laboratories organized around two courtyards. To Salk,

however, two buildings disposed about a single common space seemed to be a better and "clearer statement of life."[11] Kahn did come to appreciate Dr. Salk's logical point of view and finally resolved the laboratory building into a bi-nuclear arrangement about by a single common axis [Fig.15, Fig.16].

Guided by traditional monastic imagery Kahn had envisioned the central space to be a verdant green. He invited the Mexican architect Luis Barragan to make suggestions for the landscaping of the court; but Barragan suggested that the space was perhaps best left as "a plaza of stone" or "a facade to the sky."[12] To Barragan, the powerful iconic symbolism of the Salk Institute could not be if trees were to be planted. Kahn seemed to agree and, thus, came about the realization of the powerful statement at the Salk. In what was perhaps a reiteration of a famous axiom Kahn stated, "Architecture is...what nature cannot make."[13]

The central space was further made more powerful by a simple band of water. This single stream of water is perhaps comparable to the ideal line of Plato, dividing the courtyard into two equal halves and symbolically uniting the measurable with the unmeasurable. The moving stream of water creates a contemplative atmosphere almost connotative of the ultimate futility of man's actions or alternatively celebrates man's highest ideals and achievements. Whatsoever may be the personal experience of an individual, this powerful statement of the Salk is yet another manifestation of Wright's organic resolution into bi-nuclear *parti*

perhaps made all the more powerful and iconic by that simple band of water which not only unites the two halves of the building, but also embraces the vast ocean of the Pacific [Fig.19].

Kahn's own "organic" taxonomy of the "servant" and "served" is more refined at the Salk Institute when compared with his earlier attempts at the Richards Medical Research Building at the University of Pennsylvania [1958-60] wherein the servant spaces dominate. At the Salk Institute, the "served" laboratory floors and the "servant" floors are nested together as near equals. Servant spaces, located within the nine-foot depths of hefty Vierendeel trusses, are alternated with the laboratory spaces, 11 feet in depth, in a tiered arrangement; however, the distinction between the "servant" and the "served" on the face of the building is visually suppressed nearly to the point of extinction [Fig.20, Fig.21, Fig.22].

Furthermore, if Louis Kahn's articulated integration of the Salk Institute could be peeled off to reveal its "organic" additive juxtaposition of parts into a integrated whole, the most emphasized "served" spaces would be the laboratories which required unencumbered flexible work areas. The rest of the supportive functional features, such as the circulation stair towers and the study towers, appear to be fringed on the periphery. Furthermore, in the monastic cells overlooking the cloistered court, each cabin cranes its neck to catch a glimpse of the Pacific resulting in slight staggered masses and thus interrupting the apparent regularity of the facades. Through these design maneuvers of staggering and

juxtaposing the "served" and the "servant", Kahn was able to realize an "organic integration" of "parts into a whole" at the Salk Laboratories[14].[Fig.17, Fig.18].

At the Salk Institute, Kahn's life-long passion for construction materials flowered into an absolute passion for scrupulous detailing and excellent finish. Rough textured concrete, revealing its form-work edge markings, beautifully blends with paneled teak wood. Moreover, the severe vocabulary of the towers enhances the abstractness of the building composition and the entire building almost reads as a procession of minimalist sculptures. Therefore, as with the three dimensional cohesive massing of Larkin building, the Salk Institute's procession of abstract geometric forms, also is an art object in itself. In that sense, both buildings' own disposition and geometrical massing serves are their very own ornament.

The Larkin Building was not to live long. It was demolished in 1950 due to economic reasons. However, as illustrated, the "organic" design principles begun by Wright in the Larkin Building just did not remain immured in the books of history of architecture; instead, these principles and design resolutions were brought to life again in perhaps a more iconic and powerful experience at the Salk Institute of Biological Sciences by Louis I. Kahn.

Thus, two iconic landmarks of American architectural design,the Larkin Building and the Salk Institute, stand in perfect homage to the

larger American organic tradition and reiterate Wright's famous statement, "Above all Integrity!"[15]

End Notes

1. Jack Quinan, Frank Lloyd Wright's Larkin Building: Myth and Fact ,Cambridge: The MIT Press, 1987, cited from p.xi, p. 33, p. 44. Of his Larkin design Wright wrote :

> The Larkin building is, frankly, "a group of bare, square edged, parallelopipedons, uncompromising in their geometric precision, without delicate light and shade," but fitted to one another *organically* and *with aesthetic content.*
>
> By *aesthetic viewpoint* I mean the point of view of the man who sees in the thing that which is its *soul,* its simple *truth,* and sees it in such terms of *form, line, sound* or *color* as to reveal its *life,* and so that the revelation is in itself a *harmonious organic entity.*
> [Frank Lloyd Wright, "Reply to Mr. Sturgis's Criticism," published under the title In the Cause of Architecture , by the Larkin Company, Buffalo, NY, April 1909. Reprinted in Appendix L, Frank Lloyd Wright's Larkin Building: Myth and Fact , Ibid., p. 168.]
> [my italics]

2. MacCormac's technique ["The Anatomy of Wright's Aesthetic,", Architectural Review , 1968, pp. 143-146] of a progressive abstraction of the recorded material to its very essence - the underlying grids, the "organic" juxtaposition of parts, and his discernment of Froebel patterns in Wright's buildings - provided a crucial reference for the graphic illustration of organic design principles. Herdeg's moves [Formal Structure

In Indian Architecture , New York: Rizzoli International Publications, 1990.] of selective omission and inclusion have also been employed at number of places to make visible the formal relationship of parts. Baker's diagrammatic method [Le Corbusier, An Analysis of Form , New York: Nostrand Reinhold, 1984.] of reading into Le Corbusier's aesthetic vocabulary also provided a useful reference for reading into the buildings of Kahn and Wright.

3. The expression "a facade to the sky," is borrowed from a suggested description of the inner courtyard by Luis Barragan . Also refer to Endnote no. 11.

4. In An Autobiography [1932], Wright described his "movement of the stair-towers" with maximum dramatic effect:

> But not until the...the plaster-model of the building stood completed on the big detail board at the center of the Oak Park draughting room did I get the articulation I finally wanted. The solution that had hung fire came in a flash. I took the next train to Buffalo to try and get the Larkin Company to see that it was worth thirty thousand dollars more to build the stair towers free of the central block. Quoted from An Autobiography, rev.ed., New York: 1943, p.151.

5. Jack Quinan in his discussion on the "The Evolution and Sources of the Design," [pp. 21 - 43], highlights a very ordinary design process conspicuously lacking a mythic content and provides an interesting counterpoint to Wright's stirring account of his inspiration.

6. Ibid., p. 30.

7. The modified sculptural treatment provided a continuity between the exterior and interior; it conveyed elevating messages to the Larkin Building work-force about the nature of work; and it declared the aspirations and identity of the Larkin Company.

8. Moreover, the position of the oversized sculptural bearing piers on the north and south facades was aligned exactly with the piers that frame the light court inside. The vertical development of the exterior piers rising from simple rectangular brick shafts to striated tops, and then to putti and globes paralleled a similar but more significant vertical development within the light court itself . The brick piers surrounding the light court rose 76 feet from the main floor to a double glazed skylight through which Wright's medium of transcedence flooded into space. The brick piers had elaborate capitals which were further crowned by a living plants conservatory located on the top-most sixth floor. The hierarchy - from plain, solid piers to elaborate capitals to living plants [from dead to living matter], and then with light accented gilded inscriptions - was totally Emersonian in conception. Refer to "The Message in the Building," for a wider discussion of the symbolic aspects of the building ornament at the Larkin, Ibid., pp. 85- 110.

9. Frank Lloyd Wright, A Testament [1957]. Also quoted in Frank Lloyd Wright in the Realm of Ideas Pfeiffer and Nordland ed., Carbondale and Edwardsville: Southern Illinois University Press, 1988, p. 26.

10. Dr. Jonas Salk, interview with David B. Brownlee et al., April 18, 1983. Also refer to Endnote 11, p. 110. in David B. Brownlee, and David G. De Long, Louis I. Kahn : In the Realm of Architecture, New York : Rizzoli International Publications, 1991.

11. Dr Jonas Salk, interview with David B. Brownlee et. al., Ibid., Endnote 23, p. 110.

12. Luis Barragan quoted by Kahn, Ibid., Endnote 27, p.111.

13. Louis Kahn, Ibid., Endnote 28, p. 111.

14. Another case of an additive "organic juxtaposition" is the unbuilt meeting house project at the Salk. Here, for the first time Kahn had a

chance to develop his "anti-glare" concept setting "a building within a building." The individual units of the meeting hall are varied in shape and are juxtaposed in plan without an extrinsic management of form, resulting in a geometrically varied profile. This profile is further complicated by portions of walls enclosing differently shaped interior volumes, for in addition to passively juxtaposed shapes, other more complicated shapes are juxtaposed essentially through superimposition of squares enclosing circles and circles enclosing squares. Although the similarity may be coincidental these configurations recall Wright's famous statement "...the cube I find comforting; the sphere inspiring.... In opposition of the circle and the square, I find motives for architectural themes."[1a] Perhaps not incidently, their semblance to Renaissance diagrams of the Vitruvian man symbolizes harmony, perfection, and the fundamental truth about man and the world [Fig.a & Fig.b].

1a. Frank Lloyd Wright, "In the Cause of Architecture, March 1908,", republished In the Cause of Architecture ,New York: Architectural Record Books, 1975, p. 55.

15. Frank Lloyd Wright quoted by Jack Quinan, Ibid., p.115.

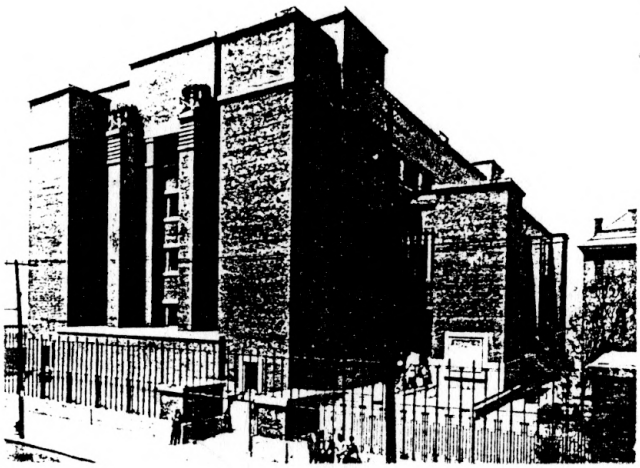


Fig.1 The Larkin Building is, perhaps Wright's boldest essay in geometry up to 1903 and is well-acclaimed by historians as the first great protest against historical precedents.

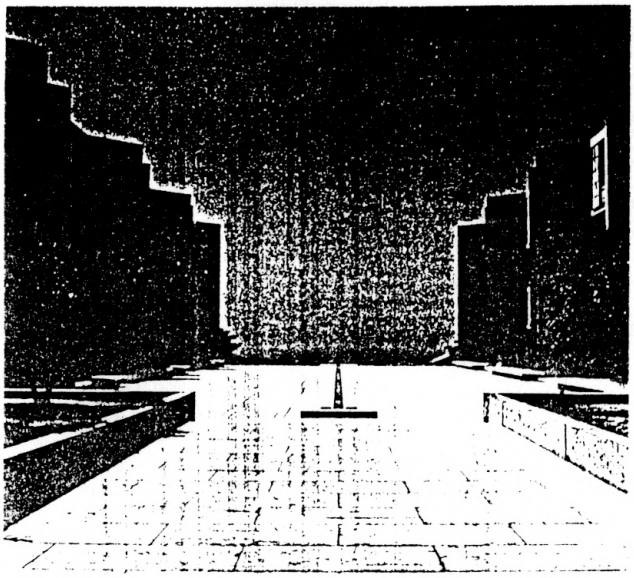


Fig.2 The Salk Institute's iconic embrace of the Pacific and its powerful facade to the sky are landmarks in the history of public buildings in America.

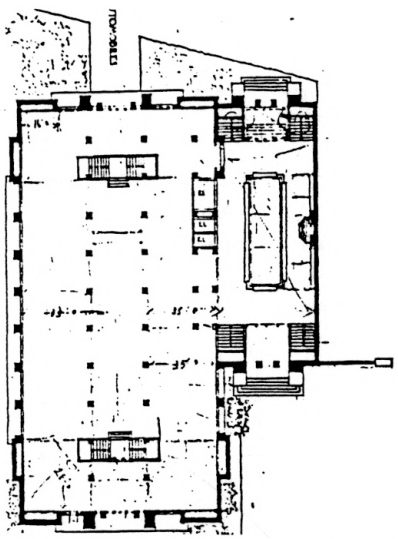


Fig.3a The Larkin Adminstration Building First Floor Plan "early 1903"

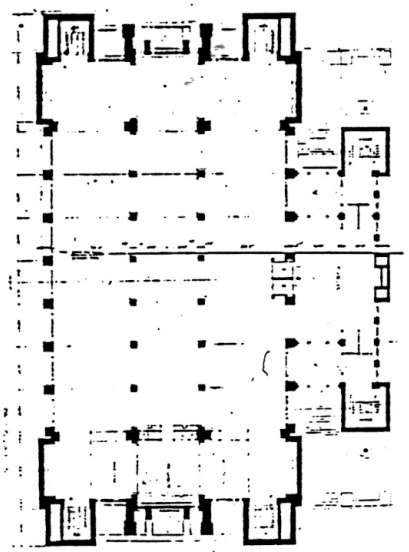


Fig.3b The Larkin Adminstration Building First Floor Plan "1904"

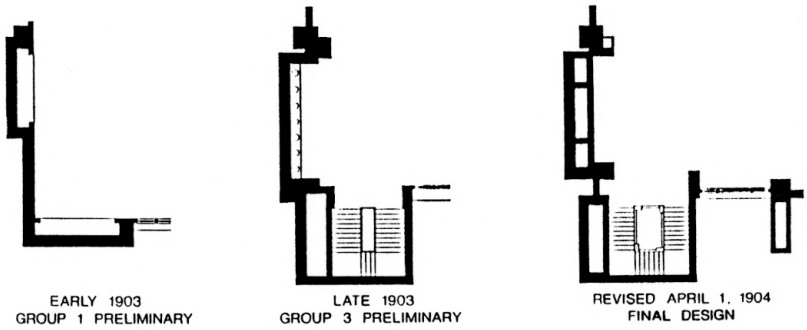


Fig.4 Evolution of corners of the Larkin Building from early 1903 to April 1, 1904.

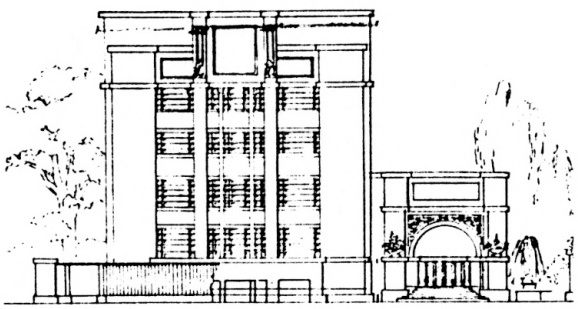


Fig.5 An Early Elevation showing the arched foliated entry [revised April 1, 1904].

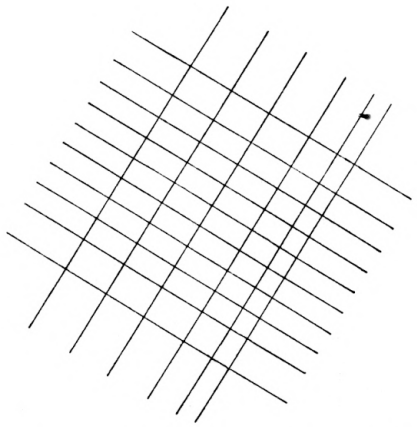


Fig.6 Underlying "grids" echo the basic order and rhythm sustaining the universe, and enable the building to seek a synthesis with the larger organic whole [Man, Nature, and Cosmos].

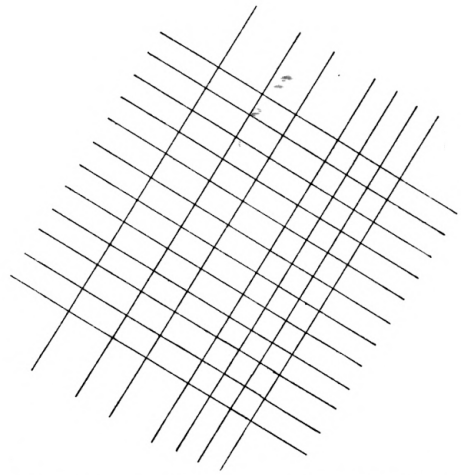


Fig.7 A slight revision was made within the grid-spacing in the final version of the Larkin Building.

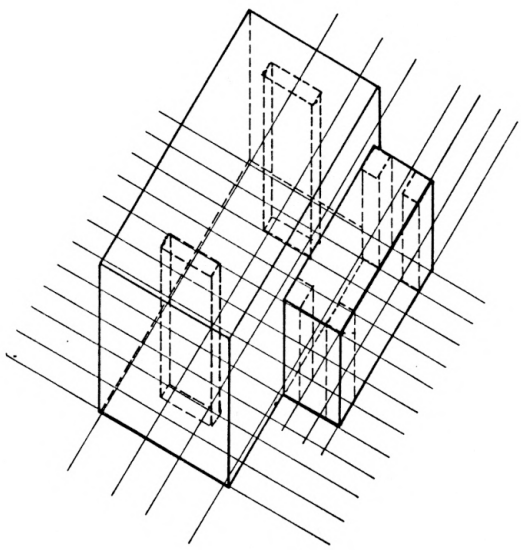


Fig.8 In the initial *parti*, the stair-blocks were located within the main central top-lit vertical space.

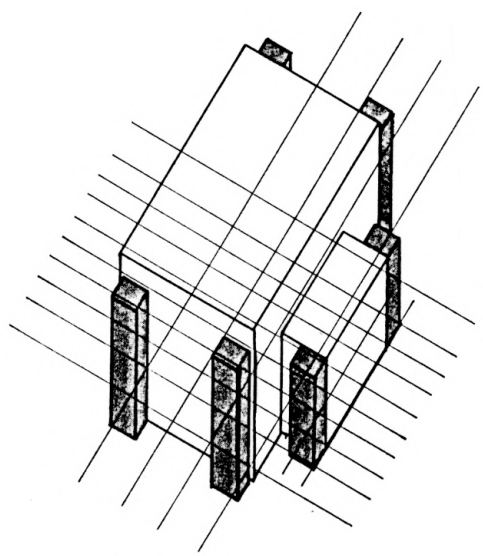


Fig.9 In the final design, however, the stair-towers broke out of the confines of the "box"...and this move was perhaps Wright's first fundamental step in search for organic principles in architecture.

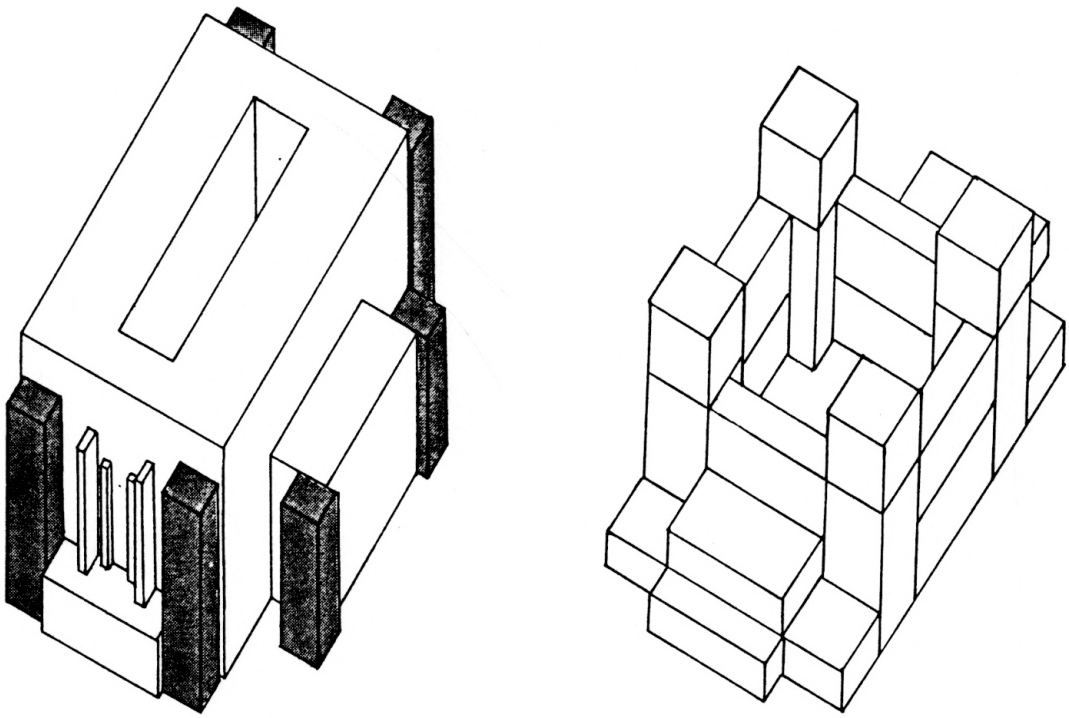


Fig.10 The Larkin Building and the Froebel Connection : The formal semblance of the cohesive interlocking geometry of the Larkin Building with the Froebel blocks is easily discernible.

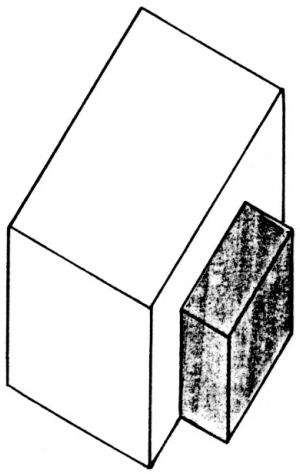


Fig.11 The distinction between the "served" and the "servant" is apparent in Wright's bi-nuclear resolution into a "principal main block" and the "annex." The "served" here is emphasized over the "servant."

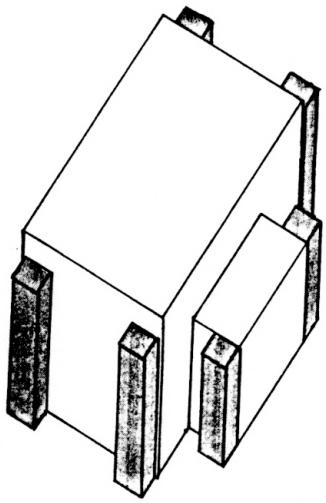
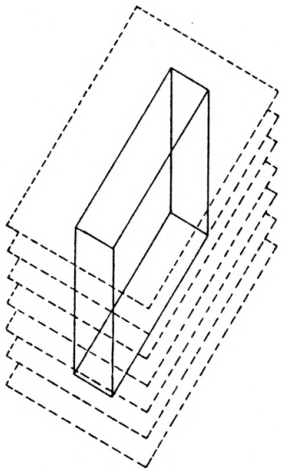


Fig.12 The utilitarian stair towers [servant] were subsequently pushed out of the four corners and valorized over the main block [served].



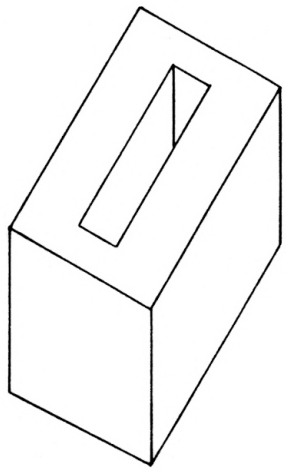


Fig.13 Within the main block the clearly dichotomized, solid versus void resolution tends to completely dissolve the apparent distinction between the "servant" and the "served." It is difficult to distinguish whether the central top-lit space serves the tiers of work space or the work spaces, instead, are concentrically arranged in homage to the central space.

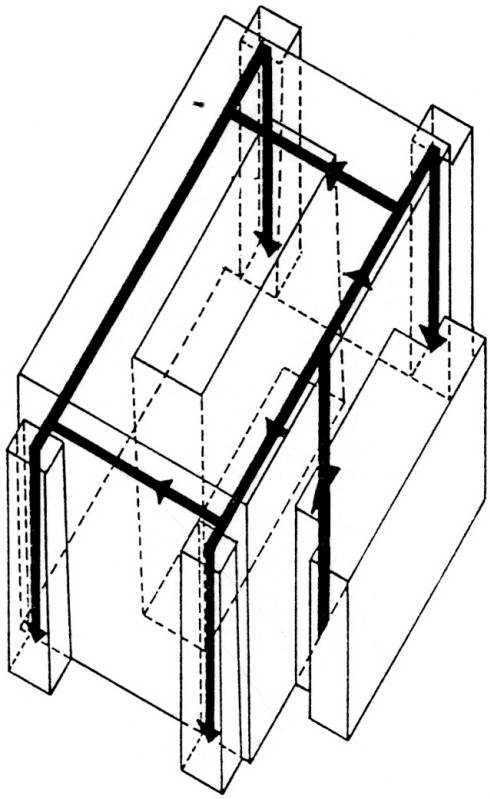


Fig.14 Movement of the Mail : The horizontal movement options provided by Wright's bi-nuclear *parti* when juxtaposed with the vertical circulation of the mail which after it had left the third floor was primarily downward or gravitational clearly brought to realization Wright's famous aphorism, "...essence of an organic building is space, space flowing outward, space flowing inward."

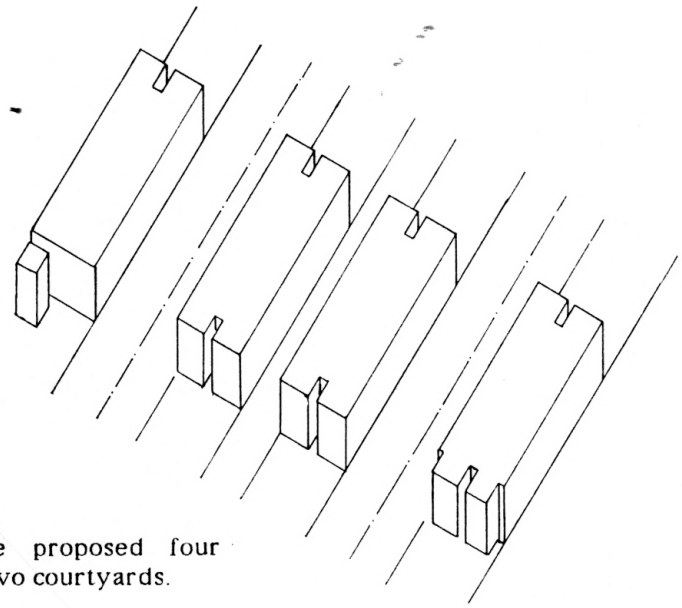


Fig.15 Kahn's initial scheme proposed four laboratories organized around two courtyards.

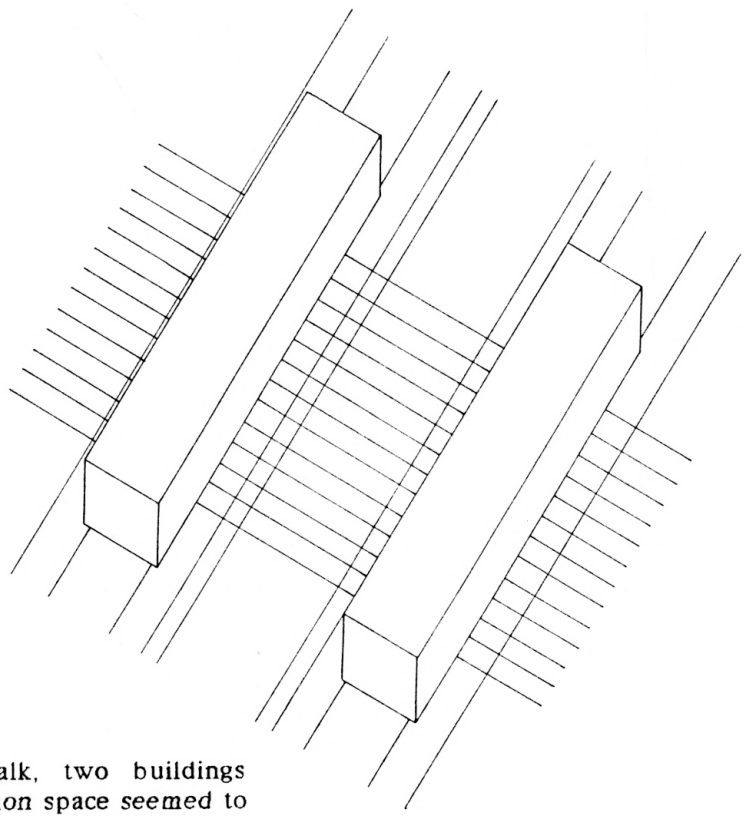


Fig.16 However, to Dr. Salk, two buildings disposed about a single *common* space *seemed* to be a better and "clearer statement of life." Thus, the most important "served" spaces at the Salk Institute - the laboratories which required unencumbered flexible areas-were disposed about a single common axis.

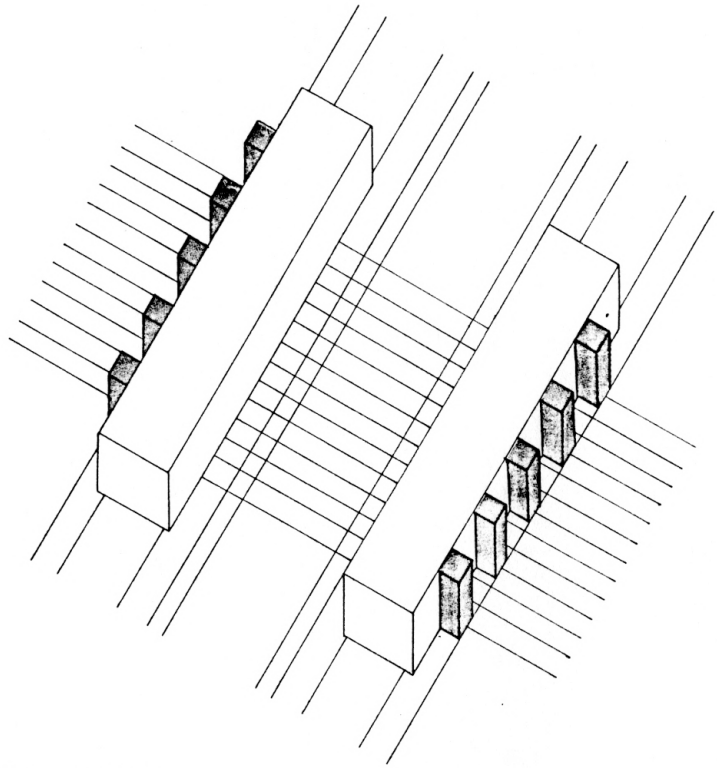


Fig.17 The rest of the supportive features, such as the circulation towers, are fringed to the periphery.

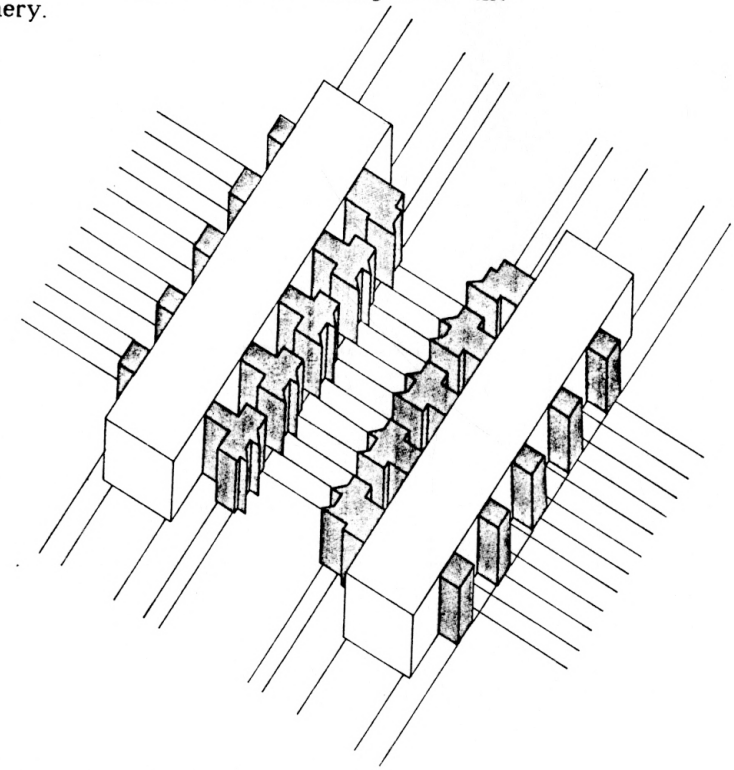


Fig.18 Furthermore, each cabin cranes its neck to catch a glimpse of the Pacific resulting in a staggered profile.

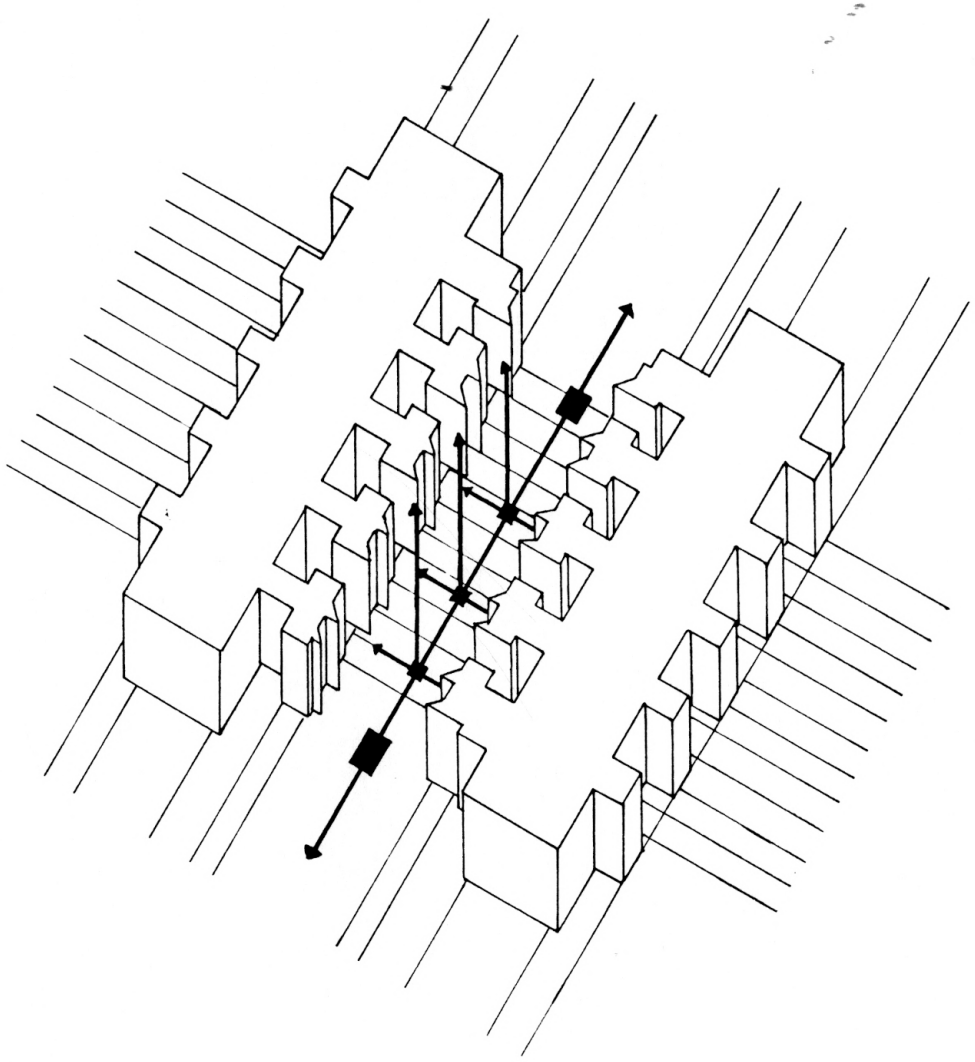


Fig.19 The powerful statement of the Salk is yet another manifestation of Wright's bi-nuclear *parti* perhaps made all the more commanding and iconic by that simple band of water which not only unites the two halves of the building but also embraces the vast ocean of the Pacific.

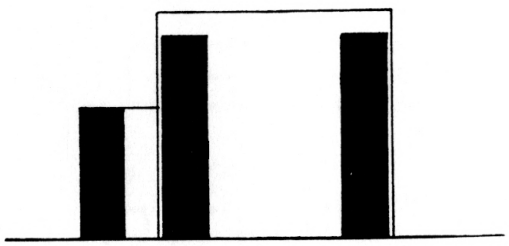


Fig.20 The Larkin Building
The servant monumentalized over the served.

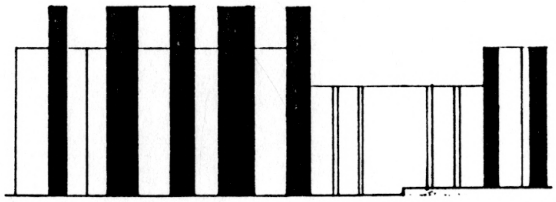


Fig.21 The Richard Medical Building
The servant completely overpower the silhouette.

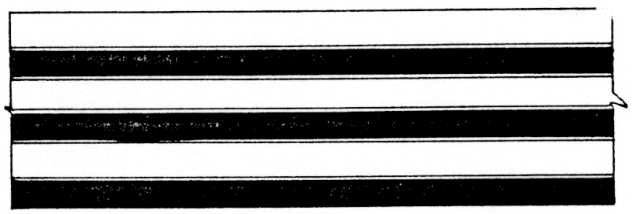


Fig.22 The Salk Institute
Within the section, the servant and the served are nested as near equals.

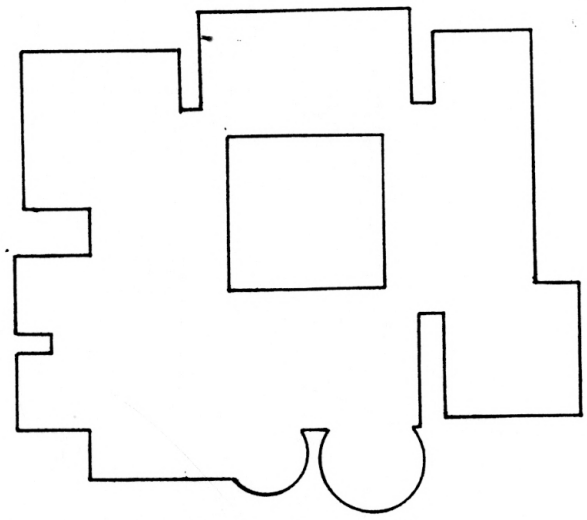


Fig.a The unbuilt Meeting Hall
A series of buildings within a building. The individual units are juxtaposed without an extrinsic management of form, resulting in a geometrically varied profile.

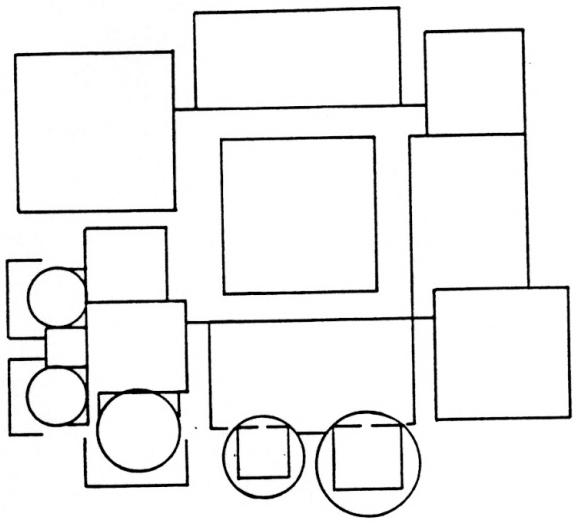


Fig.b
Superposition and juxtaposition of squares enclosing circles and circles enclosing squares, clearly recall Wright's famous statement, "In the opposition of the circle and the square, I find motives for architectural themes.

CONCLUSIONS

This thesis set out to explore Louis Kahn's relationship with the larger organic tradition in American architecture. Its claims may be small, but the fruits of this research could be plentiful.

The proven discernment of an organic morphology in Louis Kahn's oeuvre substantially recasts his place in American architectural history and literature. Louis Kahn's role as a figurehead of the important transition from the banal functionalism of the late International Style to a new formalism, the most extreme manifestation of which is the post -modern movement, is well attributed to his roots in the French Rational - Classical legacy. However, this crucial influence of Kahn's architecture and philosophy has seldom been associated with or attributed to the naturalistic evolutionary philosophy of the American organic tradition. This thesis's contention that Louis Kahn along with Wright and Sullivan shares the ideals of a Jeffersonian democracy and the romantic transcendentalism of the great American poets and writers such as Emerson, Thoreau, Melville, and Whitman not only relates Kahn's ideas to the philosophies of these forefathers, but tends to bring to light the crucial pervasion and influence of these naturalistic, evolutionary philosophies on present day American architectural design theory.

This thesis also brought to sharp focus the rather unexplored relationship between Kahn and Wright. The author was unable to trace any strong personal links and contacts between the two men; however, a possibility of their existence and their exploration still remains.

Philosophic attitudes towards nature have been undergoing transformations ever since the beginning of human civilization. However, the modern investigations of the seventeenth century which led to Man's faith in a linear and progressive time completely metamorphosed the conception and interpretations of nature. It might be an interesting avenue of research to explore the three different interpretations of "nature" as propagated by Kahn, Wright, and Sullivan [within the context of the each man's time frame] and relate them to the evolution of the conceptions of nature through the history of mankind .

The fact that both the Larkin Building and the Salk Institute are icons of the Modern movement yet alludes to the principles of what Alan Colquhoun has called "biotechnical determinism"; and brings to focus the relationship of doctrines of "organic architecture" to the Modern movement. Indeed Wright contended that "Organic architecture ..[was]... Modern architecture." Wright has also alluded to the parallels and similarities between organic principles of thought and some Oriental philosophies. This avenue of research also remains largely unexplored.

This thesis also alluded to the fact that "organic architecture" is perhaps not anti - Classical and that the principles of organic architecture pervade the history of the making of architecture; a further exploration of this aspect of organic thought also might make an interesting study.

Walter Gropius, Eero Saarinen, and Erich Mendelsohn [and perhaps many more architects] have also been known to have asserted a relationship to the organic principles of thought. The argument put forth in this thesis does allude to and does acknowledge the fact that schools of architectural thought perhaps originate in strong, self-referential, polemical contentions put forth by architects, historians, and theoreticians; and an objective and critical exploration may [and does] unravel interesting parallels and similarities. In search for "new" architecture, movements originate and dissolve; that they do evince larger transformations cannot be denied.

The doctrine of "organic architecture" was one such polemic propagated by Wright and reiterated by Kahn. However, somewhere along the way "organic architecture" came to be associated with stylistic criteria; this thesis seeks to renew investigations into organic architecture as based on a fundamental aesthetic theory and contends that principles of organic architecture transcend superficial stylistic traits. In the end, the author wishes to reiterate an earlier contention in this thesis: the significance of the "ideal of organic architecture" remains in its intangible existence, in its

metaphorical overtones, and in its role as a theoretical anchor - all working to strengthen the designer's ability to see, sense, and comprehend the immutable laws and rhythm of creation sustaining mankind, nature, and the cosmos - and synthesizing this understanding with reason, passion, and imagination into the creation of an architecture of incomparable distinction. In that sense all great architecture and all great architects have sought an organic relatedness of parts into an integrated whole.

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